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THE PHYSIOLOGICAL AND THERAPEUTICAL ACTION OF ERGOT.

By ETIENNE EVETZKY, M. D.

(*Continued from November number.*)

PART III.—THE THERAPEUTICAL ACTION OF ERGOT.

Preparations and Administration of Ergot; Chemical Incompatibilities; Indications and Contraindications for the use of Ergot; Ergot in the Diseases of the Circulation, and of the Organs of Circulation; Hyperæmia, Congestion, Inflammation, Purpura, Aneurism, Varicose Veins, Varicocele, Hæmorrhoids, Nævi, Hæmorrhages; Local Hæmostatic Action of Ergot; Exophthalmic Goître, Cardiac Over-action, Cardiac Hypertrophy, Valvular Diseases of the Heart, Functional Dilatation of the Heart.

PREPARATIONS AND ADMINISTRATION OF ERGOT.—The pharmacopœias of different countries do not give the same preparations of ergot, and the same preparations are not prepared alike. Ergot is used in powder, as fluid extract, extract, tincture, wine, infusion, sclerotic acid, etc.

The *powder* is hardly ever used in this country, but more frequently on the continent of Europe. Its taste, local irritating properties, uncertainty of strength, and comparatively slower action are the main objections to its use. The dose is 10 to 30 grains. The *fluid extract* is officinal only in the United States and British pharmacopœias, and is the commonest preparation in both countries. One minim represents, as usual, one grain of powder; but, as it is free from many irritating ingredients of the crude drug, it can be given in much larger quantities, and more frequently. The dose is from one half a drachm upward, according to the effect produced and the tolerance of the patient. Properly diluted, it can be used for hypodermic injections or external applications. It is of a dark-brown color; its taste and smell resemble those of the crude drug, but in a lesser degree. Beef-tea disguises its taste almost entirely. According to the United States Pharmacopœia, it is obtained by exhausting the powder with water, alcohol, and acetic acid. Formerly glycerine was also used. In England the fluid extract is obtained by treating the powder with ether, water, and alcohol. The *extract* is a very common preparation in this country and England, but it is officinal only on the European continent. It is prepared according to Bonjean's method, at times with some modifications. It is called frequently Bonjean ergotine, or ergotine. The crude powder is exhausted with water; the solution is then evaporated to the consistence of syrup; alcohol is added; and after one day the mixture is filtered and evaporated to the consistence of an extract. It is used in pills, suppositories, ointments, and bougies, and, in solution, internally, externally, and hypodermically. The usual extracts represent about five times their bulk of the crude drug. The *tincture* is an antiquated preparation, although found in nearly every European pharmacopœia. Its strength is variable. The *wine* is officinal in this country. It is made by adding one part of the fluid extract to seven parts of sherry wine. It is very rarely used. The *infusion* is hardly ever used, although it figures on the list of the officinal preparations of nearly every country. In France ergot is prescribed also in the form of *syrup* (Soubeiran's and Major's formulæ), *pill* (Bouchardat's formula), and *potion*. *Sclerotic acid* is not admitted yet to any pharmacopœia, but it is gradually gaining the favor of the profession. Representing the minimum bulk, acting the least as an irritant, and possessing all the desirable properties of the usual preparations of ergot, it bids fair to supersede them all at a not very distant period. Its use is rather common in Germany. The dose of sclerotic acid is from half a grain to one grain.

It is evident that the list of the officinal preparations is unnecessarily large and cumbersome, and might with advantage be reduced to the extract, the fluid extract, and sclerotic acid, for they are the only actual and practical modes of administering the drug.

For local applications either of the extracts can be used. As both are irritating, they must be diluted according to the requirements of the case. Five to ten per cent. will be found the most acceptable strength in the majority of cases. Any of the usual diluents can be used for this purpose.

For hypodermic administration we can use the extract, the fluid extract, or sclerotic acid, diluted in water with or without the addition of glycerine or alcohol. There is no evidence that the two latter substances improve the solution in the least. All precautions should be taken to have the solution always clear, and also not too old. If the injections are particularly painful, the solution should be made a little alkaline. Injections must be practiced invariably in the muscular tissue. It is well also to begin with small doses to avoid the occurrence of any unpleasant accident.

We have stated that the physiological actions of ergot, digitalis, and strychnine have many points of resemblance, while the differences existing between them are such that one may correct the effects of another. In consequence, great benefit may be derived from associating these remedies together. Thus, digitalis will remove any objection that can arise on account of the sedative action of ergot on the heart, should the latter effect be contraindicated. The stimulating action of strychnine on the general nutrition will tend to neutralize the ill effect in this direction produced by the prolonged use of ergot. On the other hand, the combined administration of these drugs will intensify the specific action of ergot on the motor centers of the inorganic muscular tissue.

Chemical Incompatibilities.—Ergot should not be prescribed in combination with substances containing tannic acid, or with the metallic salts.

General Indications for the Use of Ergot.—As the main feature of the physiological action of ergot is stimulation of the motor centers of the organic muscular tissue, its therapeutic uses must be intimately related with the morbid conditions of the organs composed of this tissue, or with those that can be relieved by acting on these organs. All other peculiarities of the physiological properties of ergot are of little or no practical value at all. In view of the exceedingly varied and numerous therapeutic uses of ergot, to facilitate this description it is well to place all similar conditions together and thus form a number of groups bearing their own distinct clinical type. Accordingly we have:

1. Disorders of the circulation, and diseases of the organs of circulation.
2. Paretic conditions of the organs composed of organic muscular tissue, the circulatory system excepted.
3. Inflammatory and other morbid enlargements and growths.

4. Abnormal secretions.

5. Symptoms referable to the nervous system, and depending chiefly upon the circulatory disorders within it.

As the only object of this classification is a practical one, we may overlook its numerous defects from the theoretical stand-point.

CONTRAINDICATIONS TO THE USE OF ERGOT.—Admitting the question of individual idiosyncrasy, which arises in connection with a great many drugs, we will mention here only the relation of ergot to such factors as the peculiar conditions of the heart, uterus, general nutrition, etc. A few years ago Dr. Thomson * raised the question whether ergot could safely be administered to a patient suffering from some serious cardiac disease. Having referred to the marked depressing action of ergot on the heart, he related a number of instances in his practice in which he thought sudden death was caused by the cardiac paralysis induced by ergot taken for a disorder entirely foreign to the heart. In the course of the discussion Dr. Bennett and Dr. Simpson coincided in the opinion that there was no sufficient evidence to ascribe the unfortunate termination in these cases to ergot. Granting the difficulty of deciding in each given case the merits of the point raised by Dr. Thomson, there can not be the slightest doubt that we must administer ergot with extreme caution to a patient with an enfeebled heart. Should it be borne badly, the combination with digitalis would present the best method for its use. In some cases ergot produces a particularly pernicious effect on the heart. Meadows reports a case in which attacks of angina pectoris were observed † every time it was taken. We have already referred to the fact that ergot is apt to produce very severe uterine colics in some women. If its combination with opium be undesirable or ineffectual, this will prevent the further use of the drug. Pregnancy is not an absolute contraindication, as there are cases on record in which ergot had been taken for a long time without interfering with gestation.‡ The use of ergot should be suspended temporarily during menstruation unless it is given for some special condition of that function. If ergot is called for, and the patient's general health is very poor, it must be given per rectum or hypodermically, to avoid making matters worse by disturbing the digestion. By combining it with strychnine and digitalis, we place ergot in the most favorable conditions. We may state here that the rectal ad-

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* "Brit. Med. Jour.," Aug. 24, 1872.

† "Practitioner," 1875, p. 161.

‡ Semple, "St. Louis Med. and Surg. Jour.," Aug., 1875. Rouge, Nebinger, *et al.*, "Berl. klin. Woch.," 1873, pp. 531, 542.

ministration of ergot in suppositories, or as an enema, should be adopted in all cases where it is practicable.

On the Use of Ergot in the Disorders of Circulation, and the Diseases of the Organs of Circulation.—We will consider first the circulatory lesions of the blood-vessels, namely, hyperæmia, congestion or vascular relaxation, acute and chronic inflammations.

Hyperæmia is a physiological condition of the blood-vessels characterized by an active peristalsis, producing a more rapid flow of blood, greater blood pressure, and increased transudation; the part in consequence is redder and warmer. Although this is the condition of the vessels when the organ is in a state of functional activity, it may assume a pathological character by being of an unusual severity, duration, and frequency of recurrence, or occurring in an abnormal place or at an unusual time, or if produced by abnormal causes, and is the source of some morbid manifestations. The symptoms of hyperæmia closely resemble those induced by irritation of the vaso-dilating nerves, and whether they are actually due to this or to paralysis of the vaso-contracting nerves depends upon the cause of the hyperæmia. At any rate, the treatment indicates the reduction of the violence of the circulation, and this is readily accomplished by ergot, which tetanizes and contracts the blood-vessels. Cold accomplishes the same result in two ways: directly, by making the vascular peristalsis more sluggish, and in a reflex manner, by acting on the sensitive nerves of the part. The astringents act chiefly in the latter way. Ergot acts from within, cold and astringents from without. The action of the first is a continuous one, while that of the latter is temporary, and requires repeated applications. Ergot has the advantage of being entirely free from any injurious influence on the morbid process itself, while the stimulants, from the very nature of their action, are apt to aggravate it. But when the hyperæmia is deeply seated, the efficacy of external measures is very much reduced, if not entirely abolished, and we must use ergot, which can reach any part of the body. Reports relating to the treatment of hyperæmia with ergot are not very numerous in current literature, and they mainly relate to various morbid symptoms of the nervous system. The uniform success, and the nature of the physiological action of ergot on the blood-vessels, should lead to a more general use of ergot in this class of diseases.

Relaxation of the blood-vessels, or *congestion*, is another circulatory disorder, functional in its character, and the very reverse of hyperæmia. The vessels lose their tone, and peristalsis is absent or sluggish; they are not responsive to external agents, and remain relaxed, the blood flowing slowly and at a reduced pressure. If this paretic state is idiopathic, as it usually is, we must look for the primary cause in the lost vigor of the vaso-motor innervation, depending frequently upon the depressed state of the general health. General tonics, local stimulants, massage, electricity, hydrotherapy, etc., are the usual methods adopted in the treatment of this condition; and ergot, strychnine, and digitalis are the natural systemic agents to be used, because they meet in a direct manner the cardinal defect of the circulation.

The use of ergot in *inflammations* is a very important topic, considering how frequently we are called to treat the diseases depending upon it, and how inadequate at times our measures against it prove themselves to be. The latest researches on the pathology of inflammation show conclusively that it depends mainly upon the altered state of the walls of the blood-vessels. We may say in a general manner that the healthy state of the blood-vessels is compatible only with the normal circulation and the normal character of the blood. We are also gradually learning to appreciate the influence of trophic centers over the nutrition of the blood-vessels. The blood-vessels possess a certain tolerance of minor deviations from the normal conditions; but, once this limit is overreached, their nutrition becomes more or less seriously affected, giving rise to a variety of structural lesions, such as inflammation, fatty, atheromatous, waxy degenerations; other conditions determine infarctions, the hæmorrhagic diathesis, purpura, aneurism, etc. As the subject has been little studied, and is irrelevant, we will omit the consideration of the influence of the trophic centers. The question of the blood-changes has also no direct bearing on our subject. The quantitative blood-changes—the amount of the normal ingredients of the blood being lesser or greater—and qualitative blood-changes—alterations of the albuminoid principles, or the presence of foreign substances in the blood, such as lead, alcohol, the syphilitic and the malarial poisons, etc.—frequently cause structural lesions of the blood-vessels. The general tendency is to ascribe these lesions to the direct action of these blood-changes on the walls of the vessels, but the more correct explanation is, at least in the cases of the saturnine, alcoholic, and syphilitic intoxications, that they are of a central trophic origin, determined by the presence of the above-mentioned substances in the blood. The last element, the circulatory disturbances, is the most important for us, not only on account of its greater frequency as the cause of inflammation, but also because it relates to the antiphlogistic properties of ergot. Of these disturbances the deviations from the normal in the energy of the flow of blood are the most important.

Unfortunately, we can not trace minutely all the stages in the evolution of the inflammatory process. In some cases of reflex inflammation, as, for instance, when it attacks deep-seated viscera as the result of profound cutaneous irritation—from burning, the electric moxa, the application of blisters, etc.—there can hardly be any doubt that the first effect of the irritation is to cause an intense reflex anæmia in the organ; and, when the vascular spasm after a while becomes relaxed, and the circulation is restored, the blood no longer finds a healthy, normal vessel, but one changed from the prolonged starvation, in consequence of which arises the train of symptoms observed in the course of inflammation. But the latter may also originate in an entirely different manner; namely, instead of the preceding stage of anæmia, it may proceed from an excessive hyperæmia. Let it be too intense, or last a considerable length of time, and shortly the unnatural energy of the circulation becomes the cause of altered nutrition of the vascular wall; it ceases to react in the natural manner to the blood within, and so-called inflammation sets in. If we take the extreme examples of both types of the vascular lesions, it is evident that they are not identical, otherwise no material difference can be detected. Once the inflammation is established, in the central focus of the affected part we find the inflammatory changes in the vessels at their height, while in the centrifugal direction they are less marked until we reach the border, where there is little beyond pure hyperæmia. This coëxistence of hyperæmia and inflammation is very important to bear in mind, as the first serves as the fuel to the latter, and, unless the functional disturbance of the circulations subsides of its own accord, or from the remedial agents directed against it, the structural lesions of the blood-vessels can not but progress. In fact, the largest area of every inflamed region is composed of the hyperæmia; here the color is of a brighter hue, and the part is warmer, but it is less hard, tumefied, and painful than at the main seat of the structural lesion. The microscopical aspects present a greater difference; the inflamed vessels do not pulsate, they are relaxed; do not respond to external stimuli, their physical properties are altered, as is seen from a certain tendency on the part of the white corpuscles to adhere to them, the ready transudation of the fluid portions of the blood through their walls, and the escape of the corpuscles. Absent peristalsis determines slower blood current, which is impeded still further by aggregation of the white corpuscles along the walls. Let this state continue long enough, and the change within the parietes of the vessels will reach the point at which the latter will become entirely unfit to perform their function; circulation stops, the surrounding tissues break down, and an abscess is the final result. But if the retrograde process becomes established, hyperæmia subsides, the circulation assumes its normal character, and, with the access of healthy blood, the blood-vessels that did not suffer irreparably will gradually resume their function, and the part will be healthy once again.

We conclude from the preceding considerations that the only rational treatment of inflammation is one which is directed against the hyperæmia and the violence of the circulation within the affected region. If we now examine the therapeutic properties of the measures, general and local, which daily experience has proved to be efficacious in the treatment of inflammation, we readily appreciate that, in every instance, they tend, in one way or another, and more or less directly, to reduce the amount of the blood in the part, to diminish the violence of its circulation, or, in other words, to meet the indication which we have just mentioned. Such are the ultimate results of using cold, counter-irritants, revulsives, local and general depletion, and mechanical measures like postural treatment and compression; and they are still more readily obtained if the local treatment is assisted with purges, vascular sedatives, anodynes, rest, etc. With our present knowledge of the action of ergot on the circulation, and with a clear idea as to what we wish to accomplish in treating an inflammatory disease, we shall naturally be inclined to estimate the antiphlogistic properties of ergot highly. The indications for its use are rational, clear, and based upon positive knowledge of the object and means. There are innumerable instances of therapeutic uses of drugs in general practice upon bases far less sound and firm than the claim just advocated. The value of ergot becomes still greater if we are dealing with a deep-seated inflammation, too far from the surface to be reached by, or of a nature precluding the use of, the greater part of the above-named local measures.

We have dwelt, so far, upon the local action of ergot, but every grave inflammatory process is accompanied by marked constitutional symptoms, which call for attention, sometimes even more urgently than all the local manifestations combined. Fever, violent beating of the heart, headache, and disturbed sleep from the hyperæmia of the brain, leading sometimes to delirium, and rapid respiration, are the common features calling for relief. We know already, and further proofs will be presented later on, that ergot will quiet the heart, relieve cerebral congestion, reduce the temperature, and diminish the frequency of the breathing. Taking, then, the whole action of ergot on the system in case of an inflammatory affection, we must pronounce it an antiphlogistic *par excellence*, as it meets in a direct manner every element of the inflammatory process. And if we bear in mind that it in no way conflicts with anything else we may adopt at the same time, but, on the contrary, that it insures a more efficacious action of these measures, we acquire an additional reason to use it in this order of diseases. The course of an acute inflammation, as a rule, is brief, and there can be no danger in using frequent full doses of ergot. The hypodermic method, injecting in the immediate vicinity of the diseased part, may be adopted if it is desirable. Smaller and frequently repeated doses are to be preferred to a few large ones. The inflamed surfaces may be treated also by some liquid preparation of ergot, if this is deemed necessary.

So much for the theoretical consideration of this subject. If we look now over the past volumes of the medical periodical literature of different countries, we find that a large number of physicians have been led, by one reason or another, to treat different inflammatory diseases with ergot. Their reports, which will be laid before the reader in as condensed a form as the nature of the subject will permit, will convince him, by their uniformly favorable character, of the correctness of the argument just advanced.

Croupous Pneumonia.—Up to a very recent date we were taught with regard to the treatment of pneumonia that "Nature cures, and the only duty of the physician is to maintain life until this cure is effected."[*] But the recently conducted experiments with the calomel treatment in the hospitals of this city have clearly demonstrated that we can modify the course of the disease materially and favorably. It is opportune, then, to discuss the merits of another radical method of treating the same disease, the advantage of which lies in the absence of the pure empiricism peculiar to the calomel treatment. Wycisk,[†] Herminades,[‡] Scearce,[#] Yeaman,[‖] Wells,[^] Boggs,[◊] C. Handfield Jones,[↧] Hobbs,[↕] and Meacher and Colman[⇞] unanimously affirm that ergot, particularly if given early in the disease, can abort it, make it of a shorter duration, or make it of a milder severity with regard to its general and local symptoms, the expectoration assuming almost immediately a pale color and diminishing in quantity, the cough lessening in frequency and severity, the fever soon receding in intensity, and the convalescence being very rapid. For my own part, I have been able to verify the truth of these statements, and some of my friends who have been induced to try the treatment also speak favorably of its efficacy. The rapid and invariable decoloration of the sputa speaks conclusively in favor of the pulmonary circulation being effectually attacked by ergot. In view of the importance of the subject, the reader will pardon me for transcribing the report of Yeaman's case, as it illustrates very typically the action of the drug in this disease.

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[*] Jürgensen, von Ziemssen's "Cyclopædia," v, p. 150.

[†] "Allgem. med. Central-Zeitung." "Phila. Med. and Surg. Reporter," xxxii, 1875, p. 447.

[‡] "Nederl. Tijdschr. voor Genesk.," 1874, p. 34. Virchow and Hirsch, "Jahresbericht," 1874, i, p. 487.

[#] "Phila. Med. and Surg. Reporter," xxxvi, 1877, p. 299.

[‖] "St. Louis Clin. Record," 1878, p. 280.

[^] "Med. Record," 1879, p. 405.

[◊] "Brit. Med. Jour.," 1879, ii, p. 772.

[↧] *Ibid.*, p. 856.

[↕] "South. Med. Record," ix, 1879, p. 401.

[⇞] "Chicago Med. Jour. and Exam.," 1880, p. 260.

December 13th, 9 A. M.—Forty-eight hours after rigor, patient aged thirty, male. The general signs of the disease, as dullness, crepitant râle, bronchial breathing (in opposite lung), rusty sputum, dyspnœa, etc., are well marked. Temperature 104·5°, pulse 108. Had taken, before I saw him, a large dose of calomel, which moved the bowels freely several times. 12 M.—Commenced taking ergot, fl. extr. ʒ ss. every two hours. Temperature 105·5°, pulse 116. 4 P. M.—Temperature 105°, pulse 112.

December 14th, 9 A. M.—Temperature 104°, pulse 104. The medicine was taken several times during the night. Dyspnœa less troublesome, sputum contains less blood, cough much less painful and frequent. Sweat profusely for two hours early this morning. Skin moist. The medicine has produced stupor, patient easily aroused. No pain when quiet. Ord. ℞ Ammon. muriat. ℈ ij, syr. scillæ, glycerinæ, āā, ℥ j. M. S. Desertspoonful every two hours. 12 M.—Temperature 103°, marked improvement in every way. 4 P. M.—Temperature 102·25°, pulse 100. Drowsiness increased. Expectoration very slight, and free from blood. Apparently suffers no pain whatever.

December 15th, 9 A. M.—Temperature 101·5°, pulse 108. Has eaten nothing for sixty hours; ordered beef-tea and chicken broth. 3 P. M.—Temperature 100·5°, pulse 100. Skin moist and cool; constant stupor. 8 P. M.—Discontinue ergot till morning.

December 16th, 9·30 A. M.—Temperature 99⅝°, free from pain, and inclined to be jocular; ergot, ten drops every two hours. 4 P. M.—By a misunderstanding, no ergot since yesterday evening; temperature 101·25°; ordered ʒ ss. doses to be given again, and to be taken during the night.

December 17th, 9 A. M.—Found patient up, eating breakfast with his family.

It is evident that ergot did not cut short the actual duration of the disease; but, from the record of the temperature, it is apparent that its action upon the severity of the inflammation was immediate and progressive. Exacerbation occurred only once, and this was due to the medicine being omitted for a considerable length of time.

C. Handfield Jones's case demonstrates also a marked reduction of the temperature:

Beginning of the disease on May 16th, admitted to the hospital on the 19th. Temperature 104°, pulse 96, respiration 47. Ordered ʒ j fl. extr. of ergot four times a day, also ℥j mist. ammon. acet. Rapid improvement from that time on.

May 20.—Temperature,	102·9°;	pulse, 102;	respiration, 48.
" 21. "	100·7°;	" 86;	" 38.
" 22. "	98·6°;	" 78;	" 44.
" 23. "	97·8°;	" —;	" —.
" 24. "	97·8°;	" 66;	" 34.

Wounds.—Here is another excellent opportunity of observing the action of ergot on the inflammatory process. Flourens,[*] Bonjean,[†] Labat,[‡] and a great many French[#] and Italian physicians[‖] have used it internally or as a dressing in the treatment of wounds. According to them, ergot tends to make the wound heal more kindly; to diminish the suppuration; to combat the inflammation about it; and to reduce the liability to blood poisoning. Ergot had been used very extensively during the Crimean campaign with the result of establishing on a firm basis its hæmostatic and anti-putrid properties for local applications. It had been frequently incorporated in the dressings for inflamed and bleeding wounds to control profuse and unhealthy suppuration occurring after severe injuries, and also in the treatment of scorbutic, irritable, scrofulous, and chronic ulcers.[A] Pirogoff[◊] recommends ergot dressings also in the treatment of bleeding wounds in exhausted, scorbutic, or pyæmic patients. Of course, since the introduction of our modern antiseptic and improved dressings, wounds only seldom assume the grave character so common formerly; yet very frequently they succeed only partially in eliminating every source of irritation and inflammation, so that, by accepting the experience of the past, we may still derive benefit from the local use of ergot. Brown[‡] has reported a case of an obstinate cold abscess cured by repeatedly washing it out with infusion of ergot. Flourens finds a two- to five-per-cent. solution of ergotin in water best for ordinary wounds, and a five- to ten-per-cent. solution for hæmostatic dressings.

Inflammatory diseases of the skin allow us to watch closely the behavior of the morbid process under the local or internal use of ergot. Sovet[‡] found it useful in all inflammatory diseases of the skin; also in erysipelas. Eldridge[‡] more recently treated a number of cases of acne rosacea, of alcoholic and other types, by means of local applications and injections into the affected skin, invariably curing the disease. For hypodermic purposes he used the following solution: ℞ Extr. ergotæ, gr. xv; glycerinæ, ʒss.; aquam ad ʒij. M. Of this, he injected two to three minims every third day. Still more recently, Denslow[*] has found ʒss.-doses of the fluid extract three times a day very beneficial in the same disease. Piffard[†] failed to see any benefit in a case of rosacea from a like treatment. Fox[‡] states that ergot taken internally seems to improve some cases of acne; but, in one case of rosacea in which he used it, no improvement was noticed. Meyerhoff[#] obtained great results from local applications of ergot in varicose ulcers and eczema. I have treated a case of an obstinate facial erysipelas of two months' standing, and covering one side of the face, with an ointment of vaseline containing three per cent. of the extract of ergot and digitalis. A very striking improvement was noticed within twenty-four hours, the disease being entirely cured in ten days. Subsequent relapses were treated in like manner, dispersing the inflammation in a few days. The same ointment, alone or in conjunction with Hebra's diachylon ointment, acted well in eczema attacking the legs, and in chronic ulcers with eczematous borders. Riedinger[‖] injected ergotin into the substance of a frozen nose, controlling the inflammatory process in a striking manner.

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[*] "Wien. med. Woch.," 1865, p. 451.

[†] "Comptes Rendus," 1867, p. 1100.

[‡] Labbé, "Gaz. des Hôp.," 1867, p. 5.

[#] "Berl. klin. Woch.," 1869, p. 133.

[‖] "Wien. med. Woch.," 1865, p. 451.

[A] *Ibid.*

[◊] Pirogoff, "Voyenno-polevaja Chirurgia," Dresden, 1865, i, p. 336.

[‡] "Lancet," May, 1849.

[‡] "Bull. Gén. de Thérap.," xxxii, 1847, p. 330.

[‡] "N. Y. Med. Jour.," Oct., 1879, p. 360.

Inflammations of the mucous membranes have been frequently treated with ergot, taken internally or applied locally, as the case may be. Sovet (*loc. cit.*) used it with benefit in ophthalmia. Planat[A] obtained also good results in different forms of ophthalmia. He used a five- to a seven-and-a-half-per-cent. solution of ergotin in glycerine or rose-water, from 8 to 10 drops to be put into the eye every two hours. If chemosis is present, or inflammation is very severe, he recommends to place over the eye compresses soaked in the same fluid.

Dabney[◊] is less pleased with ergot in acute ophthalmia, or when there is a good deal of irritation, than in less active inflammation, and particularly when there are present large, tortuous blood-vessels. He uses a solution of 10 grains to the ounce of water with one drachm of glycerine. The eye is washed a number of times a day with warm water, and a few drops of the solution placed in it. He believes ergot has been used with benefit also in granular conjunctivitis. He makes daily applications with a camel's-hair brush of a solution of ergot thrice as strong in cases of pharyngitis. Also better results are obtained in chronic forms. He combines in some cases ʒj of tincture of iodine with ℥j of ergot solution. Eldridge (*loc. cit.*) reports a number of cases of gleet and gonorrhœa rapidly cured by applications of the extract to the urethral mucous membrane. Also a case of chronic otitis, treated locally with extract of ergot a little diluted with glycerine, rapidly improved after eight applications. T. Curtis Smith[*] obtained a good result in a case of severe chronic bronchitis; ergot was taken internally. Ergot may be said to be a specific for cystitis, particularly in its chronic forms, leucorrhœa, uterine or vaginal, diarrhœa, and dysentery. These will be referred to more fully later on.

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[*] "N. Y. Med. Jour.," Feb., 1881. [†] *Ibid.*, Aug., 1881, p. 184. [‡] *Ibid.*

[#] "Dtsch. med. Woch.," 1881, No. 8. [‖] "Arch. f. klin. Chir.," 1876, p. 457.

[A] "Med. Record," 1879, p. 528.

[◊] "Am. Jour. of the Med. Sci.," July, 1879, p. 161.

Ergot has been used with benefit also in *inflammations of the serous membranes.* Gibney and Caro[†] had good results from it in *tubercular meningitis.* A case of *cerebro-spinal meningitis* is reported cured with ergot.[‡] Read[#] reported also good results from it in the same disease. In fact, ergot is used quite frequently in all forms of meningitis.

Ergot also exerts a very favorable action if inflammation attacks different organs, as we have seen already, as an instance, in the case of pneumonia. Schtscherbinenkoff,[‖] having witnessed complete suppression, or a considerable diminution, of milk in women and cows during the epidemic of ergotism occurring in Simbirski district (Russia), was led to try it in cases of threatening mammary abscess, so-called milk-fever, enlargements of the breast accompanied by fever aside from the puerperal state, and also in local disorders following the weaning of the child; and the results were invariably good. Ergot, as the reader is aware, is the standard remedy in nearly all forms of myelitis. T. Curtis Smith (*loc. cit.*) observed beneficial results from its use in a case of chronic pneumonia. Phthisis has been frequently treated with ergot by French physicians, and the symptoms were more or less improved by it. To this testify Arnal, Gauillaud, Piedagnel, Seé, and others.[Λ] Planat (*loc. cit.*) speaks favorably of local applications of ergot in iritis. It is used very extensively at present, particularly in Germany, for different inflammatory diseases of the uterus. Manette[◊] speaks well of ergot in adenitis and orchitis.

It is needless to say that the foregoing examples of the use of ergot in the treatment of inflammatory diseases are only a portion of what is buried in past literature, but they are more than sufficient to remove any doubt the reader may have had with regard to the merits of the theoretical considerations advanced in the preceding pages. The list of the diseases referred to is a very large one, embracing a considerable portion of special pathology, but they are simply different manifestations of one and the same process—inflammation; and ergot cures, relieves, and improves them only in so far as relates to it alone. From the humblest to the most eminent members of our profession comes the invariable testimony that ergot exerts a favorable influence on the inflammatory process. Its merits have been tested during more than a quarter of a century, although most frequently during a more recent period, in nearly all countries, and by persons generally ignorant of the experiences of others in the same direction; only a very few were aware of similar efforts in the same field. Consequently this unanimous verdict can not be considered a representation of some single local school, nor as expressing some transient movement in science, but should be looked upon as an unbiased and confirmed conclusion, which we must accept, whatever may be the merits of the individual cases referred to. The reader may have noticed that ergot has been used frequently in diseases of minor practical importance, but only seldom in such as task all our resources. This is natural, considering the experimental nature of the first efforts, but we can, in the present state of this question, assume a more definite position, and resort to ergot with less doubt as to its efficacy than formerly.

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[*] "Phila. Med. and Surg. Reporter," xxxii, 1875, p. 445.

[†] "Phila. Med. Times," viii, p. 66.

[‡] "Boston Med. and Surg. Jour.," July 18, 1867.

[#] "Phila. Med. and Surg. Reporter," xxx, 1874, p. 556.

[‖] "Centralbl. f. Chir.," May 8, 1875.

[Λ] "Wien. med. Woch.," 1865, p. 451.

[◊] "Med. Brief," 1877, p. 349.

We have spoken, so far, only of the use of the drug in acute inflammation. Chronic inflammation presents even more favorable conditions in some respects than the former. Like the acute form, it originates also in functional circulatory disturbance, which is in this case of a paretic character. Eventually the abnormal conditions of the blood current and of the blood itself react upon the nutrition of the parietes of the vessels and of the adjoining tissues, producing the lesions peculiar to this variety of inflammation. If the part affected is situated within the reach of local measures, which are very much the same as we use in the acute process, there is a possibility of restoring it to health; but even in such cases the treatment is frequently very protracted, and at times fails entirely. When less favorable conditions are present, we know, from past experience, the disease is beyond our means, and we limit our efforts to controlling the symptoms it gives rise to. Among the cases illustrating the action of ergot on the inflammatory process we have included a number of diseases of chronic type, and the results have been fully as favorable as in the acute disease, and at times even better, on account of the lesser irritation and the milder lesion of the blood-vessels permitting a more liberal use of the drug, if applied locally, and a readier response to it on the part of the blood-vessels. Of course the results will be the better the earlier in the course of the disease the treatment is resorted to.

Our knowledge of the pathology of *purpura* is too imperfect to give us any clew to a rational treatment of this disease. The drift of the present evidence is to the effect that it is of trophoneurotic origin. Circumscribed hæmorrhages in different parts of the body, and other evidences of a diseased state of the blood-vessels, occur frequently in the course of the diseases of the central nervous system, or in consequence of injuries to these centers.* Lewaschow, † subjecting the large nerve-trunks to a prolonged mechanical irritation, obtained in every case lesions of the blood-vessels supplied by these nerves, apparently identical with those of purpura as they are described by Hayem and Orion. ‡ On the other hand, purpura is anything but a local disorder. We find it in connection with acute or chronic rheumatism; it occurs frequently in persons with the rheumatic diathesis, or in the course of scurvy. As a spontaneous disease (morbus maculosus) it is, again, a constitutional disorder, the entire course of which can be made intelligible only on the basis of its being due to a morbid state of the trophic centers regulating the nutrition of the blood-vessels. This supposition is far more in accord with the facts of the case than the theory that the changes of the blood-vessels are secondary to some morbid state of the blood. These theoretical considerations are laid before the reader because they relate to a property of ergot not apparent when we study its physiological action, but which becomes evident when we examine its therapeutical action, namely, that it modifies the nutrition of the blood-vessels. Only from this stand-point can we understand why it should be so beneficial in purpura, # and in a number of other diseases of the blood-vessels to be spoken of presently. Hypodermic injections in the affected part cut short the disease, and the effusion of the blood rapidly passes away.

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* Charcot, "Diseases of the Nervous System," 1879, p. 85; Nothnagel, "Centralbl. f. d. med. Wissensch.," 1874, No. 14.

† "St. Petersb. med. Woch.," 1880, No. 31. ‡ "Rev. des Sci. Méd.," xvi, p. 161.

Bauer, "Dtsch. Klinik," 1868, p. 313; Henoch, "Berl. klin. Woch.," 1868, No. 50; Piazza, Virchow u. Hirsch's "Jahresb.," 1874; Mavor, "Brit. Med. Jour.," Oct. 31, 1874; Lewes, *ibid.*, p. 690; Lane, *ibid.*, Sept. 5; Minich, "Phila. Med. Times," 1874, p. 502; Bulkley, "Practitioner," 1876, p. 323; Monette, "Med. Brief," 1877, p. 349; and many others.

The use of ergot in the treatment of *aneurism* is a very important and interesting chapter of the therapeutical action of the drug. Although the priority of adopting it in this disease is conceded to Langenbeck, I find it mentioned that ergot was used in aneurism by a number of French physicians at an earlier date than that of the report of Langenbeck's cases.* His intention in using ergot was to act on the muscular structure of the sac, and thus to reduce the size of the tumor. The results obtained were excellent, but the *motive* can not be sustained. The history of his two cases is as follows: †

I. An aneurism of the right subclavian artery, of five years' standing, of the size of a man's fist. Hypodermic injections of ergotin (0·5–2·88 grains) every fourth day between the skin and the tumor. In all 30 grs. were consumed during six weeks. The improvement was immediate and progressive, and when the patient was exhibited before the Berlin Medical Society the size of the tumor was much diminished, the pulsation was very slight, and he was able to use his arm.

II. Traumatic aneurism of the radial artery at the wrist joint, of the size of a hazel-nut. After one injection the tumor disappeared entirely within twenty-four hours. The treatment was begun immediately after the injury.

The solution used in both cases consisted of one part of ergotin to three parts, each, of alcohol and glycerine.

Schneider‡ reported to the Medical Society of Königsberg a permanent cure of an aneurism of the femoral artery, treated like Langenbeck's first case. No details are given.

Albanese# reported a very interesting case, which illustrates the mode of action of ergot in these cases. An aneurism of the innominate artery, of the size of a mandarin orange. The tumor dated back about six months. After the third injection the pulsation became feeble and the size of the tumor perceptibly smaller. On the fifth day of the treatment the patient was able to move her head and arm more freely, and the respiration became easier. After four more injections the decrease of the tumor became still more noticeable, with corresponding improvement in all the symptoms. On continued injections, which were made at longer intervals, her condition steadily improved; she could be out of bed and could speak without any difficulty, and the swelling of her arm passed

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* "Wien. med. Woch.," 1868, p. 126. † "Berl. klin. Woch.," 1869, pp. 117, 138.

‡ *Ibid.*, p. 390.

"Gazz. Clin. di Palermo," 1870, No. 1.—"Brit. and For. Med-chir. Rev.," xlvii, p. 239.

away entirely. At the end of a month of the treatment, finding herself very much better, she left the hospital.

Dutoit's[*] case resembles somewhat the preceding case. Here the injections were continued, later on with compression of the tumor. Recovery. A large circumscribed aneurism of the left subclavian artery. After four injections, practiced every second or third day, a very marked decrease of the tumor was obtained. The improvement continued. After one month of treatment he applied interrupted digital compression for a week, and later on he adjusted an apparatus to exert a uniform pressure over the tumor. The injections were continued. The cure was obtained in five months.

Herminades[†] cured a popliteal aneurism. Wolff[‡] cured an aneurism of the abdominal aorta. Tilanus (reported by Herminades) has had only partial success. Range and Quincke met with failure, while Catiano's patient recovered.[#] Plagge[‖] used the injections for a traumatic aneurism of the femoral artery. The tumor decreased in size; digital compression was resorted to; the patient recovered. Carter[^] treated a thoracic aneurism with iodide and bromide of potassium, later on with injections of ergotin, diet and rest through the entire course of the treatment. In three months the patient's condition was very much improved, pulsation was scarcely perceptible, and the murmur was almost inaudible. He left the hospital, but returned three months later in a worse condition than before; the cure was accomplished by galvano-puncture. Sutton[◊] treated a case of aneurism of the descending portion of the arch with the fluid extract of ergot, iodide of potassium, and rest. The treatment lasted thirteen months, and resulted in a perfect cure.

Ord[‡] employed ergot in three cases of aneurism. In two cases of thoracic aneurism the administration of ergot was always followed by the improvement of all the symptoms; the effect was immediate, but the treatment was not sufficiently systematic and long-continued to give any permanent results. The third patient, with abdominal aneurism, apparently recovered entirely. Ergot was used internally.

Stephens[‡] had also favorable results in a case of an internal aneurism. No details given.

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[*] "Arch. f. klin. Chir.," 1871, p. 1070.

[†] *Loc. cit.*

[‡] "Berl. klin. Woch.," 1878, p. 314.

[#] Quincke, von Ziemssen's "Cyclopædia," vi, p. 453.

[‖] "Memorabil.," xviii, 10, p. 441.

[^] "Lancet," 1878, ii, p. 761.

[◊] "Am. Jour. of the Med. Sci.," Oct., 1880, p. 454.

[‡] "St. Thomas's Hosp. Rep.," x, p. 191.

[‡] "Cincinnati Lancet and Clinic," Aug. 27, 1881, p. 182.

The foregoing cases are sufficient in number to establish the merits of ergot. It can hardly compete with operative measures in the treatment of the peripheral tumors, although, as we have seen, cure was also obtained here. Its legitimate field is that of the internal aneurisms, against which we have so far nothing to offer with any certainty of success. Galvano-puncture is efficient only under certain conditions, of which we can not be conscious in advance. On the other hand, it fails to produce the slightest influence on tumors apparently presenting the very conditions most favorable for its use. What is more, it is not a measure entirely free from dangers. From the histories just presented it is evident that ergot acts more promptly and effectually than iodide of potassium, and, as Sutton's and Carter's cases show, both drugs can be used at the same time. Although we have a number of cases of aneurism treated with ergot, we can not yet draw any conclusions with regard to its powers. As we have seen, a number of failures are recorded (Range, Quincke), but, having no details, we can not judge of the merits of these negative results. We know that if ergot treatment is not of a sufficient duration the effect is only temporary, and the disease returns with the former severity, while, on the other hand, if the treatment was persisted in, the cure was accomplished. Not wishing to proclaim ergot as a specific against aneurism, I am still inclined to think that the partial or entirely negative results may have been due to the improper use of the drug as well as to the limited possibilities of the treatment itself.

To be in the position to obtain the maximum benefit from any drug we must fully understand the mode of its action. In view of the importance of this subject, the reader will pardon me for reviewing some of the reported cases. Langenbeck thought that ergot acted on the muscular tissue of the sac. But this is untenable, because the muscular tissue is very scanty in the coats of the larger arteries, and its amount becomes still smaller under the influence of the inflammatory and degenerative processes resulting in the formation of the sac. So that the action of ergot on the tissues can not be of much value in reducing the size of the tumor, and it may be entirely excluded from consideration. The suggestion of Schwalbe,* that the hypodermic injections of ergot cause an irritation and subsequent connective-tissue hyperplasia in the vicinity of the tumor, thus strengthening its walls, is simply absurd, because this can not account for the decrease in the size of an aneurism. What is more, ergot produces the same effect if it is injected at a distance from the tumor, or if taken by the stomach. Besides, its action is too rapid and marked to be explained in such a manner. In every case of which we have a detailed account, we find that the tumor diminished in size in a few days after the beginning of the treatment, and frequently this occurred as soon as the full physiological action of the drug became manifest. In Ord's cases this was particularly noticeable. In the first case (a thoracic aneurism) the plaster cast of the tumor fitted it loosely after the systemic action of one dose of ergot had had time to show itself. In the second case (an abdominal aneurism), seventeen minutes after taking a dose of the medicine the dimensions of the tumor decreased one inch vertically, three quarters of an inch transversely, the beats became equalized, the murmur almost ceased, and the range of the pulsation became smaller. The decrease in the violence of the pulsation in the sac showed itself very early in all the cases. These two changes —the decrease of the size of the tumor and of the force of its pulsation—are, then, the immediate effects of ergot, and are due to the reduced pressure and tension within the sac, depending in their turn upon the sedative action of the drug upon the heart. Only Wolff had taken pains to note the frequency of the pulse rate before the beginning of the treatment and at the time of the discharge of the patient, the reduction being from 82 to 64. But, from what we know of the action of ergot on the heart, this effect must be present in all cases. This alone can be the cause of a marked palliation in the severity of the symptoms, and if the tumor is well sacculated, communicating with the lumen of the vessel by a narrow opening, the prospect of cure by a gradual deposit of fibrine is rendered very favorable. Still, even in such cases a long time will be required before permanent benefit will take place, and, consequently, the patient should be kept under the influence of ergot, although no apparent further change in the appearance of the tumor is noticeable. To give the patient every chance he is entitled to, ergot should be combined with rest in bed and proper dietetic regulations. It is better also to combine ergot with iodide of potassium.

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* "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," lvi, p. 360.

But, does the sedative effect of ergot on the heart constitute its entire action in cases of aneurism? This seems to me very doubtful, and for the following reasons: It is impossible to assume that all cases cured by ergot, and the number exceeds that of the failures, were such as to be cured by decreased arterial tension alone. The cure of an aneurism is too complicated a process to depend alone upon the state of the blood pressure. Iodide of potassium, whose beneficial action in aneurism is well established, acts upon the circulation to a very slight degree, although a diminished action of the heart and a related state of the arteries are among the symptoms of iodism. When the system is brought well under its influence we observe numerous indications of its acting also upon the walls of the blood-vessels—iodic acne, ecchymotic and hæmorrhagic foci in the skin and the internal organs. It would seem, then, very plausible that these two agents have a direct action on the blood-vessels, and that to it as well as to their action on the circulation the improvement of aneurism is due. Should the former become more evident than it is at present, it will be an additional argument in favor of giving a fair and thorough trial to ergot, and not to abandon its use as soon as the disease becomes stationary.

Ergot has been used also in *varicose disease of the veins.* Vogt[*] was the first to suggest it. Subsequent experience was as favorable as his own.[†] Ergot was injected in the vicinity of the affected blood-vessels.

Bertarelli and Cittaglia[‡] adopted the same treatment in *varicocele.* In the case of the former the varicosities disappeared on the second day after the second injection. The patient of the latter did not recover until the eighteenth day of the treatment.

The use of ergot in *hæmorrhoids* is rather common. They yield rapidly to injections of ergot made either near the anus or in the substance of the tumor; also to rectal suppositories containing it.[*]

Very good results have also been obtained in the treatment of *nævi* by Herminades and Hammond.[‖] The latter injected ergot into the affected part itself.

The beneficial action of ergot in these different diseases of the blood-vessels can not be explained alone by what we know of its physiological properties. We must admit also, which is very plausible, that ergot has a power of modifying the nutrition of the blood-vessels.

Universal experience has established too well the value of ergot in arresting *hæmorrhages* to call here for anything beyond the mere mention of the subject. But we do not use it sufficiently often as a preventive when this accident is apt to occur. In all such cases ergot should be used during the entire critical period, and the reduced vigor of the heart's action, with the lowered arterial tension, will contribute largely to pass it safely. We have mentioned the local hæmostatic properties of ergot already, which are not well known to the profession. Schuberini and Becchis,[*] Flourens and Sédillot,[†] Bonjean,[‡] and others have found it useful as a local application to bleeding surfaces. Pirogoff considers ergot and chloride of iron as the only reliable topical hæmostatics. Dixon,[#] by injecting a solution of ergotin into the urethra, arrested an obstinate hæmorrhage from that source. In former editions of the Russian pharmacopœia existed an officinal preparation—aqua hæmostatica Neljubini—prepared by exhausting with water and alcohol powdered ergot and a number of aromatics.[‖] I may mention in connection with this subject that Gröbenschutz[^] has found ergotin injections very efficient in arresting the oozing of the blood after the use of Esmarch's bandage, which is often so troublesome to check.

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[*] "Berl. klin. Woch.," 1872, No. 10.

[†] Herminades and Tilanus, *loc. cit.;* Range, Nebinger, Goldschmidt, and Martin, "Berl. klin. Woch.," 1873, pp. 531, 542.

[‡] "Med. Record.," 1874, p. 260.

[*] Semple, "St. Louis Med. and Surg. Jour.," Aug., 1875; Lansing, "Phila. Med. Times," Oct 13, 1877; Dabney, *loc. cit.;* Lamadrid, "Phila. Med. Times," 1877, p. 48, and "N. Y. Med. Jour.," 1875, p. 275; Ferrand, "Rev. Méd. Franç. et Etrang.," Mar. 26, 1881.

[‖] "Arch. of Clin. Surg.," Oct., 1876.

To close the subject of the use of ergot in the diseases of the circulatory system, it remains to say a few words of its value in *cardiac affections.* Its main indications in these cases are: excessive action of the heart, relaxation of its muscular structure, and hypertrophy.

We do not realize sufficiently the dangers of excessive action of the heart. And yet we should always recognize it and arrest it, as it leads invariably in time to degeneration and atrophy of the organ. This can be readily demonstrated on an animal by cutting both pneumogastrics, the cardiac paralysis supervening in a few days from exhaustion, and the organ presenting evidence of fatty degeneration of the muscular fibers. But such experiments are not so well adapted to the study of this question as the one proposed by Wassilieff,[◊] consisting in inflicting upon these nerves various injuries which would only partially impair their inhibitory function; thus the life of the animal is prolonged, and we can observe better the natural consequences of the over-action of the organ. According to Wassilieff, the hearts of animals thus treated suffer invariably from a fatty degenerative process, the intensity of which is in proportion to the duration of the experiments. Eichhorst explains these changes as an atrophic metamorphosis consequent upon the suspension of the trophic influence transmitted through these nerves, but the correctness of this explanation is made doubtful by the experiments recently published in "Vratsch." A number of young animals were forced to daily violent exercise of some duration; they were killed at different periods, and it was found that under these conditions the heart became hypertrophied at first, while later on it became dilated and atrophied through fatty degeneration of the muscular fibers.

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[*] "Bull. Gén. de Thérap.," xlviii, p. 362.

[†] "Wien. med. Woch.," 1868, p. 125.

[‡] "Bull. Gén. de Thérap.," xxxvii, p. 137.

[#] "Cincinnati Med. News," ix, p. 107.

[‖] Dybkowsky, *op. cit.*

[^] Inaug. Diss., Virchow und Hirsch's "Jahresb.," 1874.

[◊] Inaug. Diss., St. Petersburg, 1879.

We meet with excessive cardiac action under a variety of conditions. It takes place in *exophthalmic goître.* This disease presents numerous features suggesting the propriety of the use of ergot, and yet I have met with only one mention * of its use resulting in the cure of the patient. I have had an opportunity to treat a typical case; the sedative action on the heart was very marked, but some time elapsed before the parts resumed their normal aspect.

The same excessive cardiac action occurs also in other purely nervous disorders, leading to hypertrophy first and to atrophy subsequently, and ergot should be used here also. These cases of *simple cardiac hypertrophy* have been treated frequently with ergot, and its action is well commented upon by Massini, † Arnal, Piedagnel, Sée, Gouillaud, and other French physicians, ‡ Hildebrandt, and others. It is claimed that ergot can even reduce hypertrophy itself.

In the *valvular diseases* the hypertrophy is essential to keep the general circulation properly balanced; so long as the cardiac action does not exceed this demand its increased vigor is salutary. But, as everybody knows, very frequently there is a disproportion between the two, the action being either insufficient or too great. Digitalis will be of benefit in the first case, and will do harm in the latter; and it is such cases as fail to be relieved by digitalis that, according to Massini,* are the proper ones to be treated with ergot. Timely use of this drug will tend materially to postpone the inevitable degenerative changes forming the third and the last stage in the evolution of cardiac valvular disease.

The possibility of the cardiac structure being relaxed, from an insufficient innervation, is gradually becoming recognized. This state would be analogous to the atony of other organs composed of the organic muscular tissue, with this difference, that in the heart the motility and the tonus are more sharply defined and are less dependent upon each other. The natural consequence of this defect will manifest itself by the so-called functional murmurs. Bamberger ‖ assigns the majority of these inorganic murmurs to this cause.

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* "Allgem. med. Centr.-Zeitg.," 1878, No. 11.

† "Med. Record," 1878, p. 420.

‡ "Wien. med. Woch.," 1868, p. 126.

* Dybkowsky, *op. cit.*

‖ Hoppe, "Postukivanie i Vislushivanie," St. Petersburg, 1866, p. 102.

Rosenstein * distinctly states that with these murmurs it is not uncommon to find also temporary changes in the volume of the organ simulating a structural disease of the heart. Scheperln † also ascribes anæmic cardiac murmurs to the valvular insufficiency due to dilatation of the heart. Immermann ‡ is of the opinion that they are due to defective action of the mitral and tricuspid valves resulting from an atonic state of the papillary muscles. The fact that these murmurs are relieved by ergot, # the organ returning to its normal dimensions, would indicate very strongly that it acts not only upon the inhibitory innervation of the heart, but also as a cardiac stimulant. At least, Curran ‖ found marked benefit from it in two cases of suspected fatty degeneration where cardiac action was particularly defective. He compares it favorably with carbonate of ammonium.

(*To be continued.*)

HYPOSPADIAS SIMULATING HERMAPHRODISM: A HISTORY OF TWO CASES, WITH REMARKS.

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The information we have been able to gather from medical and poetical history, together with what is furnished by the annals of mythology, shows that sexual abnormities constituting the manifold types of hermaphrodism appear to have been more or less familiarly known and commented upon by the Greek, Egyptian, Arabian, and Roman chronographers of earlier times. Thus, we find both Aetius and Paulus comparing the malformation as understood in their own country with the subject as morally and surgically treated in Egypt, while Albucasis, writing of the deformity as met with in Arabia, refers to the frequency with which enlargement of the clitoris exists in that country, and the operation of circumcision as performed by rite, or the more important measure of amputation, as not infrequently practiced upon this hypertrophied organ for either its moral influence or other results especially desired. Besides these authors, many of the Roman writers also report curious examples of the true and false varieties of hermaphrodism, and among them the name of Tertullian should enjoy particular eminence, for the many cases he reported and his intelligent exposition of this important subject.

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* Von Ziemssen's "Cyclopædia," vi, p. 55.
† "N. Y. Med. Jour.," Nov., 1881, p. 469.
‡ Von Ziemssen's "Cyclopædia," xvi, p. 899.
# "Edinb. Med. Jour.," Jan., 1877, p. 600.
‖ "Med. Press and Circular"; "Med. Record," 1870, p. 34.

From the earlier descriptions found among the archives of these ancient writers up to the time and writings of Sir James Y. Simpson,* occasional cases showing more or less sexual deformity have been mentioned from time to time in the journals of this and other countries, and, while the cases thus reported may have furnished many of the various types of hermaphrodism known to exist, a general review of the subject certainly warrants the belief that the two cases which serve as the text of our communication are among the rarest of all sexual abnormities, and that less than a score resembling or closely approximating them are anywhere on record.

However, to more fully understand and appreciate this peculiar anomaly, the plan of dividing hermaphrodism into the true and false varieties is perhaps the simplest method of clearly studying the subject, the arrangement as adopted by Sir James Y. Simpson being as follows: First, true hermaphrodism, in which, upon the same individual, malformation in the sexual development gives to the subject characteristics peculiar to each sex, or presenting what may be termed a bi-sexual condition. Secondly, false hermaphrodism, or deformities in which the sexual organs and general configuration of one sex appear, from some eccentric form of development, to more or less closely approach that of the opposite.

To the latter division, or false variety, hypospadias properly belongs, the name, however, expressing little more than a premature or unnatural opening of the urethra, and in no sense explaining or affording the slightest conception of how great the malformation may prove in such cases.

While our investigations go to establish the fact that fully nine tenths of all the cases known to medical literature, and understood as examples of false hermaphrodism, are found to exist in the female—enlargement of the clitoris being the variety most frequently seen—hypospadias, as we know, occurs only in the male, the singularity of this unusual deviation causing the parents of these children to make the mistake of supposing them to belong to the female sex, by which unfortunate oversight many unhappy and ludicrous incidents come to be associated with, and sometimes to seriously mar, the social relations of their later life.

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* "Obstetric Memoirs and Contributions," Edinburgh, 1856, vol. ii, p. 321.

The sexual organs resembling in external contour and general appearance those of the female, the parents are misled into hastily examining and wrongly deciding the sex of their child at birth. This unfortunate error continues and becomes more and more confirmed as the moral and physical training received by the child, as well as the social position it comes to enjoy, leads it to assume the habits and acquire the manners of a girl, and causes it to be received and accepted in society as a veritable young lady.

The deception thus begun in ignorance goes on unsuspected until the age of puberty or a still later period in life, when the nonappearance of menstruation or, it may be, the slow development of womanhood excites the interest and perhaps the alarm of the patient and her family, and the physician is called upon and an explanation of the young woman's "*backwardness*" anxiously asked for, and prospects of relief particularly desired to be known.

Familiarly acquainted with the physical and moral influence of hermaphrodism as the ancients prove by their writings to have been, there are, so far as our researches have gone, but a limited number of cases on record in which more than a single member of the same family have been the subjects of hypospadias or other important malformation of the sexual organs, or in which indeed the probability of an hereditary influence could be detected, or in any likely manner associated as a cause of the deformity. A few instances where such an influence seemed clearly demonstrated are quoted by Sir James Y. Simpson. The case of "hypospadias twins," "hypospadias affecting in a certain family the males of several generations," the malformation as affecting "certain families of Normandy," and the case of "four hypospadiac brothers," constitute the complement thus reported. We have found a few similar cases in recent literature.

Indeed, from what we are able to learn of hermaphrodism, as gathered from certain European writers and from the limited American literature of this subject, we are of necessity forced to conclude that hypospadias is among the rarest, as it is also one of the most curious, of all sexual anomalies, being possibly of still greater interest when discovered at such an age and under such conditions as in the two cases we are about to report, and of which we need perhaps no stronger argument to prove the rarity than that furnished by Dr. Thomas Addis Emmet, who, upon seeing the younger of the two patients in consultation, unhesitatingly declared it *the first and only one of the kind he had ever met with.*

Since the date of Dr. Simpson's chapter on hermaphrodism, two cases of hypospadias closely resembling the two under our care have appeared, the first being reported by Dr. De Forrest Willard ("Am. Jour. of Obstet.," ix, 1876, p. 501). The reference to the other case we have unfortunately mislaid.

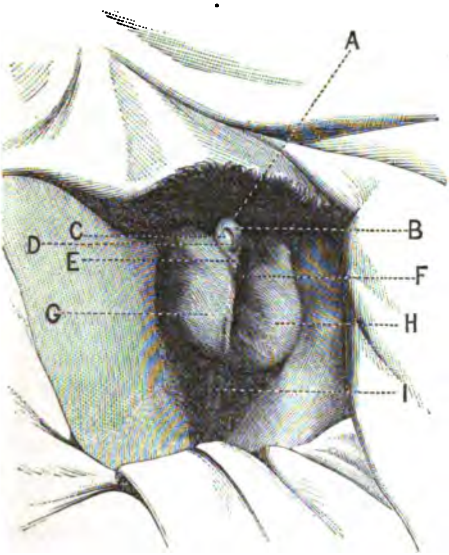
The history of our two hypospadias cases, beginning with that of the younger patient, may be told as follows:

January 8, 1881.—Miss (?) D., aged 22, height five feet one inch, weighs 107 pounds. Physical development resembles in many respects that of a man, or more properly of a boy from sixteen to eighteen years of age, especially in the shape of the pelvis and the appearance of the extremities. The facial features, however, are decidedly feminine, and the breasts but slightly developed, resembling an enlargement or cone-shaped prominence of the nipple and extreme apices of the mammæ, rather than a development of the entire gland. The feet and hands are small, and the latter delicately shaped. The hair is of a light brown, of considerable length, soft and abundant. Has large, full, expressive blue eyes. Voice decidedly alto, though tender and boyish. Enjoys considerable reputation as both an alto and soprano singer, and is regularly engaged in a church choir. Very much prefers the society of gentlemen, and has been twice pledged in marriage. Likes and dislikes are those common to women, early training having much to do with this preference, her (?) family being extremely religious, and her home the most exemplary. Has never menstruated nor suffered from other periodical discharges indicating a vicarious performance of this function. Has at times an irresistible impulse to rub the genitals, this manipulation being invariably followed by an erection of the clitoris (?) and a perfect orgasm, in which there is expelled a viscid, semi-transparent fluid, possessing the characteristic appearance and having essentially the qualities of semen. These orgasms occur also during sleep, the patient being generally awakened to find the clothing greatly soiled by the amount of fluid discharged. Urination is always attended with a sense of uneasiness, not uncommonly followed by a nervous chill and a condition of the skin known as *goose flesh*, these effects continuing for an hour or two after the act of micturition.

Proceeding to a physical examination of the patient, we found the peculiar condition of the external genitals to be as represented in the accompanying cuts, and which upon first appearance suggested an enlargement of the clitoris, with a prolapsus or hernia of the ovaries into the labia majora, this hernia-like appearance being the more strikingly noticeable because of the well-marked outlined condition of the almond-shaped bodies occupying the right and left labia majora. (Fig. 1, G and H.)

Upon further examination, however, when the lateral halves so closely simulating the swollen labia (Fig. 1) were pressed apart, and the extent of the supposed opening (ostium vaginæ) fully exposed (Fig. 2), it was found that the fissure or depression, running as a line between and dividing the supposed labia, was in fact no orifice of a canal, but instead terminated at about the depth of a half inch, and against or upon the retracted anterior wall of the scrotum, there being found upon the floor of this fissure near its upper angle, and a little below the point where the labia separate at the root of the penis, the opening of the urethra (Figs. 1 and 2, F and D), this opening being extremely small,

Fig. 1.

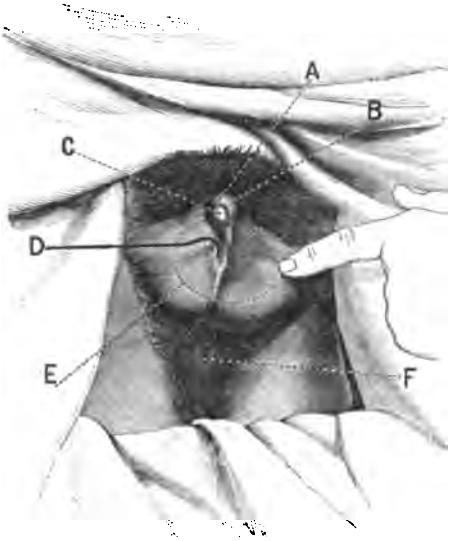


A, penis; B, prepuce; C, glans penis; D, depression of the meatus; E, extension of the prepuce, running down under the glans and simulating the labia minora; F, position of the meatus; G, right testicle; H, left testicle; I, anus.

without the ring or border usually marking the urethral opening in women, and, *when found*, having very much the appearance of a small hole made by a harness-maker's punch. Further than this fissure, or superficial septum marking the median line or division of right and left scrotal sac, there was nothing to show or indicate the slightest attempt of Nature to furnish the subject of this deformity with a vagina, or indeed with any of the organs usually associated with this cavity. The bodies contained in the two sacs differed materially in position, as they did also to a lesser degree in size, the left being fully as large as a well-developed testicle, the right a fifth smaller and somewhat higher, or more closely confined in its sac, this difference in position being mainly due to a varicose condition of the left scrotal veins, and a flabby, pendulous condition of the sac of this side.

In general appearance, as well as by the sense of touch and feeling conveyed by handling, these bodies exactly resemble, and unquestionably are, *the fully developed testicles of an adult*, being naturally connected with a mass shown to be the normal epididymis. The body corresponding with the clitoris, and measuring an inch and seven eighths in length and an inch and five eighths in circumference (in a relaxed .condition), presented at its extremity a body perfectly resembling the glans penis (Fig. 1, C), a fold of membrane forming a very natural-looking prepuce (Fig. 1, B), it being fully movable, so as to either cover or expose the glans, and, excepting a slight fissure on its lower surface, naturally and perfectly formed. The lateral, lower halves of the prepuce (as divided or fissured under the glans) extended down on either side of the urethral opening (Fig. 1, E), and presented at first sight the appearance of the labia minora. The glans penis was found to be imperforate, though a slight line or depression showed the usual

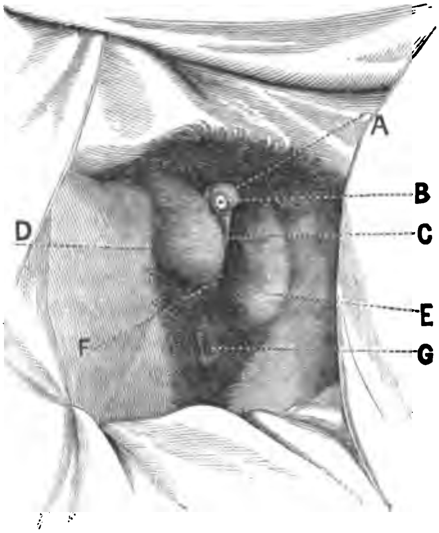
FIG. 2.



A, penis; B, prepuce; C, glans penis; D, sound inserted into the urethra; E, outline of parts which, when in contact, formed a fissure simulating a vaginal outlet; F, anus.

position of the meatus urinarius, while the frænum preputii, corona glandis, and cervix were each perfectly formed as in a miniature penis; a yet more charac

FIG. 3.

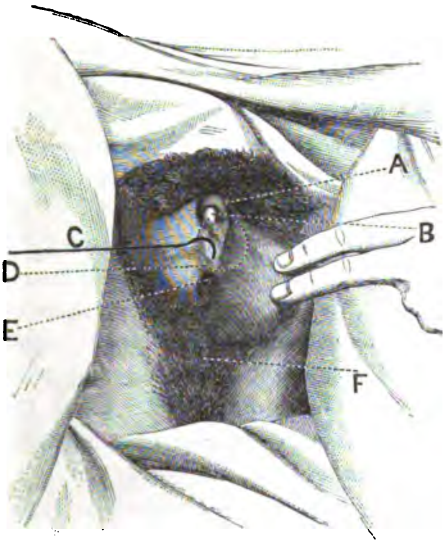


A, penis; B, glans penis; C, depression of the meatus; D, right testicle; E, left testicle; F, fissure; G, anus.

teristic feature, and one tending to show unmistakably the true sex of the patient, being the thick growth of hair extending in a line from the pubes to, and around and above, the umbilicus. The sound, when introduced into the urethra, passed nearly five inches before entering the bladder, and after a most careful rectal examination no evidences of ovaries or of a womb were found, but the prostate gland was of normal size.

The history of the second patient (Figs. 3 and 4) is, with few exceptions, identical with that of the younger, already given, the difference being that the older one (aged 27) has decidedly a more masculine look, the figure being more "*gaunt*," or large-jointed, while a short, wiry growth of hair appears in tufts upon the chin and outer angles of the upper lip. Patient avoids all company, and has the greatest antipathy for the society of men. Thinks her masculinity greatly increased during the past two years. Testicles fully and equally developed, the right scrotal sac being very much higher than the left, the right testicle appearing just without the external abdominal ring. Left scrotal sac quite pendulous, but free from varicose veins. The most important and only other difference in the malformation between the two patients, not already named, is a slight depression, less than the sixteenth of an inch deep, three quarters of an inch long, and a half inch in diameter, situated at the lower or posterior angle of the fissure dividing the testicles or scrotal sacs (Figs. 3 and 4, F and E), and imparting to the touch a feeling very much the same as in passing the finger over the depression made by pressing the end of the finger upon an œdematous limb.

FIG. 4.



A, penis; B, glans penis; C, sound inserted into the urethra; D, outline of parts which, when in contact, formed a fissure simulating a vaginal outlet; E, depression exposed; F, anus.

The cavity, or depression, is lined with a membrane or skin considerably redder than the surrounding parts, and was at first supposed to be mucous membrane, though finally decided to be identical with the scrotal covering, the redness being probably the result of irritation, caused by walking and the frequent examinations made of the parts by the patient, the opening being in the line of and caused by the cleft, or imperfect development of the perineal raphé.

Excepting the differences above given, the malformation existing in each of these two cases was precisely the same, even to the sensibility of the sexual organs, both patients suffering the same symptoms, and for six or seven years receiving treatment from the same physician for supposed amenorrhœa, or other derangements of the uterine function. The physician under whose care the patients had for five years received continuous medication, with the view of establishing if possible menstruation, failed to discover by examination, and apparently did not suspect, the true condition ot these much-dosed subjects, the patients themselves being as certainly ignorant of their real deformity as the family physician was. The younger of the two, discouraged with the results of constitutional remedies, called upon and was examined by Dr. W. R. Bruyere, of this city, and by him the patient was kindly sent to Dr. Bradfield, with a note, freely expressing his opinion of the case, and asking an examination and a report of the diagnosis.

Having been assured of their condition and made certain, as they are, and as is more particularly illustrated in the rapidly increasing masculinity of the elder, that every day added to their lives makes it more and more difficult for these unfortunate subjects of hypospadias to hide from the eyes of their friends and more intimate acquaintance the surely increasing evidence of their true sex, and the false position they have so long and successfully maintained in society, they have wisely, and in obedience to virtue, as they believe, determined to quit their present home for one so far removed that none but the tried and trusted friends that go with them in their banishment shall know the secret of their transformation, or be able to criticise the change of life and habits they there propose to adopt.

106 Halsey Street, *Newark*, *N. J.*

CASE OF EXTRA-UTERINE FŒTATION.

By BACHE McE. EMMET, M. D.,
ASSISTANT SURGEON TO THE WOMAN'S HOSPITAL.

The following history is reported because of some peculiarities in the case, making the diagnosis a difficult one; that it may serve as additional testimony in favor of the use of the galvanic battery to solve a knotty point; and further, if not mainly, that its perusal may be of some assistance to others who may chance on a similar case:

Mrs. S., of New Hampshire, aged 28, was married in November, 1877, but was never positively pregnant until the winter of 1880–'81.

She expected her period at Christmas, but saw nothing. On January 19th, which was the time for a second period, a trifling show appeared, which continued for a few days.

As she was wearing a pessary for the correction of a retroversion, and had some discomfort, I made an examination, and raised the uterus somewhat, as it was lying back on the instrument. I realized that the uterus was enlarged, and, feeling convinced, with the patient, that she was pregnant, could assure her that everything was doing well.

There was no occasion for any further interference until March 11th, when appeared symptoms of miscarriage. There were slight pains, with a show, and the cervical canal was well open, so that two joints could pass within. In spite of all efforts to quiet the uterus, the pains continued, and on the 13th clots and portions of decidua came away.

A careful examination undertaken now revealed to me the following condition, and established in my mind the conviction that we had to do with a case of extra-uterine fœtation. The uterus still lay back toward the left sacro-iliac synchondrosis, and was evidently considerably enlarged, how much I could not say, as the patient was not anæsthetized, and the abdominal walls were pretty thick and firm; still, the impression I received from the first was that the enlargement was not sufficient by far for the time that had elapsed since my examination of January 19th. Then, at the front portion and to the right of the pelvic cavity, was another mass, evidently connected with that lying back, but how intimately it was impossible to determine. This anterior mass was of the size of a fœtal head, but very soft, and giving somewhat the impression of a thick-walled cyst. None of this mass was above the brim of the pelvis, and yet here we were at possibly the sixteenth week of pregnancy.

I stated my view to Dr. T. A. Emmet, as he had placed the case under my care for attention during her pregnancy and confinement, and he, after seeing the patient and expressing the opinion that to his mind the pregnancy was abdominal, if it existed at all, advised me to ask Dr. T. G. Thomas to see the case in consultation. This he kindly did on the following day (March 17th), and made a very careful examination. He stated that to him the condition was a most peculiar one, and did not allow of an easy settlement. He, however, gave as the most plausible explanation of it the following: That there had always been some uterine growth in the anterior wall of the uterus, which at one time produced retroversion; that then normal pregnancy supervened, the fibrous mass developed rapidly in consequence, and the uterus sprang forward, giving the feel of a sharply-anteflexed uterus. There remained considerable doubt in his mind as to the true nature of the case, and he did not entirely reject my view, although inclining more to his own.

We further consulted as to the best course to pursue for treatment. My plan had been to introduce a sponge tent, which would allow us to explore the uterine cavity, and in that way clear up a doubt, and, further, would stimulate the uterus to contract, and, if the ovum were partially within the uterine wall, possibly cause it to be forced into the cavity and so expelled. This done, and perhaps failing in its desired effect, to perform laparotomy.

Dr. Thomas advised, whatever the condition, the use of galvanic shocks to destroy the fœtus. "If it is extra-uterine it will probably become harmless, and gradually disappear; if it is uterine it will produce miscarriage, which, at any rate, is desirable, as the fibroid (?) might make serious trouble to allow her to go on carrying."

The following day (March 18th) Dr. A. D. Rockwell applied the galvanic battery, beginning with ten cells, increasing the number before the end of the *séance* to fifteen. One electrode was placed in the vagina, under the mass, the other over the abdomen. At the second sitting, which was on the following day, the treatment was begun with twelve cells, gradually increasing to eighteen. The third application, two days later, was made throughout with eighteen cells. During each application frequent interruptions were almost constantly made, and at short intervals they were quite rapid—say about two hundred to the minute. This treatment caused considerable distress, and could not be borne long; yet Dr. Rockwell felt satisfied that all that could be effected by his battery had been accomplished.

The day following I introduced a sponge tent three inches in length, and removed it twenty-four hours later. I then passed the finger well up into the canal, and found it to be perfectly clean. I also passed a probe up four inches, which caused only a slight bleeding, but considerable pain, which compelled me to desist. After washing out the canal with carbolized hot water, to remove as far as possible every element of sepsis, I surrounded the patient with hot bottles, and administered an anodyne.

By this time she was rather run down and had lost her appetite, what with the pretty constant pain felt in the right iliac fossa, which had annoyed her for some days, the anxiety about herself, and the severe shocks from the galvanic battery. I ordered, consequently, a regular and liberal supply of nourishment, an occasional stimulant, and six grains of sulphate of quinine night and morning. Of her own accord she took nine grains before bedtime.

In the course of the night there came on nausea and a couple of decided chills. There were also frequent diarrhœal stools—that is, six during the night—and the patient felt hot and restless. Throughout the 25th there were constant creepy, goose-flesh sensations. The temperature at 12 o'clock was 102° F. in the mouth; at 5 P. M. it was 102·5°. There had been one chill in the mean time, and the bowels were still loose. I naturally had some apprehension of blood-poisoning. In the night there was some show, and also slight uterine pains, and on giving the morning vaginal bath there passed from her a mass which at first appeared to be clot alone, but which on close inspection proved to be organized and evidently was the greater portion of the decidua.

March 26th.—I consulted with Dr. Thomas at his office, and he advised, should the patient show any sign of running down, to perform laparotomy at once. On my noon visit, however, I found that the chills had been less, and that the patient was in a better condition, and, as the thermometer still registered 102°, and ten minutes later 102·5°, I satisfied myself, from her otherwise favorable symptoms, that the high temperature was due largely to her very nervous state about herself, and that the nausea, chills, and diarrhœa, apart from the effect to be expected from the discharge of the decidua, might have been induced by my doses of quinine. The free movements continued throughout the day, but were then partially controlled by astringent pills. I determined to stop her quinine and see if she would not do better in this respect, as her appetite was now fair and her appearance excellent.

27th.—Temperature remains about the same, 102·3°. The pulse is rapid (124), yet she is eating nicely, and feels bright. At 2 P. M. on the 28th, when feeling at her best and about to eat a dinner of chop, peas, and wine, her pulse was 130, and the temperature in the mouth was 104·3°. From this time out there was a daily rise of temperature, beginning in the morning and reaching its highest point toward four of the afternoon, establishing beyond doubt the necessity of once more resuming the use of the quinine to control what was evidently a malarial element in the case; * yet her nervous condition, as indicated by the very rapid pulse, which, however, was not at all febrile, had, I believe, much to do with the great increase of heat. True, she was still weak, yet her physical strength was each day greater, while her mind was still much troubled concerning her safety, she having fully appreciated the possibilities of danger.

She was taking all this time fifteen grains of quinine every morning. It only partially controlled the malarial element, yet one larger dose seemed so to unnerve her that I dared not increase it.

This state continued for a couple of weeks, until she reached Long Branch, when she speedily improved in all her symptoms, and her restoration was very rapid.

April 4th appeared a slight show, which lasted five days. The next show was on May 20th, a very natural period except rather too profuse. For two weeks prior to its appearance she was expecting to be unwell, but saw instead a brownish, somewhat grumous discharge.

I saw the patient again on June 7th. At that time the uterus was decidedly backward, as it had been before pregnancy, and on the front and to the right of it was a hard mass, which, however, was then much smaller than it had been two and a half months before. The patient herself had noticed its progressive decrease. As she was going away for the summer, I told husband and wife that she should not expose herself to another pregnancy until the fall.

I saw her again on the 30th of September. She was in splendid general condition, and locally there was only a very much smaller mass to be felt, lying just over the bladder, and of about the size of a flattened blue plum. The uterus was still sufficiently large to impinge on the brim of the pelvis and be supported by it.

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* She had Roman fever in the spring of 1877. In the spring of 1878 she had an attack of severe uterine pains, which her physician in the West supposed to be of malarial origin, and successfully treated as such. Again, in the spring of 1879, a similar experience.

There are several points of interest connected with this history which justify a short consideration of them.

In the first place, there was, as Dr. T. A. Emmet mentioned at the meeting of the Obstetrical Society when I related the case, a congenitally shallow cul-de-sac, causing the displacement, which of itself would render impregnation improbable. This it had been his endeavor to overcome by stretching the posterior vaginal wall, so that he was enabled to restore the uterus to its proper position, although the patient was obliged to wear a pessary. The displacement is also of interest in that authors, notably Meadows, as quoted by Parry, have held that it might be a cause of the erroneous implantation, by interfering with the normal progression of the ovum.

In the second place, the symptoms were misleading. There was not absolute cessation of the menstrual discharge, yet there was no show *during* the month, such as often takes place in this condition, not to say that it is usual.

Then, as to the development of the mass, which, until suspicion was aroused, was naturally considered to be the uterus. In this case there was no evidence of rapid growth; on the contrary, the growth remaining about the same or development being so very slow, was what, perhaps, at the first, fixed my attention upon it. Thomas says: "It is marked by a very rapid growth, so that a week's watching will show a decided increase in its dimensions."

There were certain negative signs which might have served us in making a diagnosis, more particularly the absence of the purple hue of the vagina, which, I think, most authors agree in making rather a distinguishing point between normal and abnormal pregnancy; there was no ballottement to be appreciated, and there was nothing to be detected by auscultation (we were probably in the fifth month). Another symptom totally wanting was vomiting. It is generally stated in text-books that vomiting is a prominent symptom, and that it is apt to be even more marked in this than in a normal pregnancy. The hypogastric pain also is held to be a constant feature in these cases, and to be exceedingly intense. This was mostly wanting, no pain whatever having been experienced until after the accession of the symptoms of miscarriage. It was intensified by the use of the electricity, and it then continued for even three months after the fœtus was destroyed.

As to the differences of opinion, there is little to be said. We all know that these cases are of exceeding variety, and that their diagnosis is oftentimes an impossibility. One thing certain, we had pregnancy established, and we had an extra-uterine mass, the whole thing filling the lower pelvis and extending from the left sacro-iliac synchondrosis to, and occupying, the right iliac fossa; it could either be considered faulty location of the ovum, or, as Dr. Thomas states, among other possibilities enumerated in his book on "Diseases of Women," "uterine fibroma or fibro-cyst, or normal pregnancy with retroflexion."

In my mind there was no doubt as to the true condition ; largely, of course, from having seen the patient some weeks prior, and having watched the progress of the case. I was fully convinced there was not, nor had there been, any sign of a neoplasm, and yet to Dr. Thomas the appearances suggested such a condition, and he must evidently have felt strongly that it had been overlooked. True, had one existed for any time preceding the present history, its development might, on the occurrence of pregnancy, have been sufficiently rapid to be a misleading feature; but both Dr. T. Addis Emmet and I had had, one might say, the uterus in our hands many times, and the possibility of such a complication could find no acceptance.

The same statement would apply to the consideration of a fibro-cyst, which, moreover, would, in all likelihood, be of much slower development than a misplaced ovum, and not at all likely to come upon us unawares.

As to normal pregnancy with retroflexed uterus : here certainly would have been a difficult point in diagnosis, had not the two masses been very distinct, and had we not known that the anterior one was of comparatively recent date.

It being once settled that we had to do with a case of extra-uterine fœtation, came the differentiation to be made as to the variety. This, on deliberate afterthought, could only rest between the tubal and abdominal forms, because of the shape and position of the tumor. The uterus formed no part of it, yet it seemed either to proceed from the uterus or to be implanted upon it.

To consider it tubal we should have to imagine the right horn of the uterus drawn thoroughly around to the front and even over to the left side, for the abnormal growth really proceeded from that side of the median line and then occupied the right. Of course, it is possible that the uterus in occupying its retroverted position could, at the same time, be so twisted on itself that the right horn might be forced anteriorly; but such had not been apparent during the prior treatment, and, in fact, could not have escaped detection.

The likelihood was against its being tubal from the date of the pregnancy also, which we could calculate to be already four months complete, and which would bring it to the average limit at which such tumors burst.

The comparatively small size of the uterus would be an additional argument in favor of this view, as this organ is disposed to enlarge in proportion to the proximity of the new growth.

From a careful analysis of all the symptoms, I am, therefore, led to the conclusion that it was a case of what has been called primary abdominal pregnancy, in distinction from that which occurs from rupture of a tube and subsequent implantation, which event would in reality class it as one of tubal pregnancy; and I place it as primary, as there had at no time been a single symptom to allow us to suppose there had been rupture of a cyst.

SOME EFFECTS OF AN OVERLOADED COLON IN THE PUERPERAL STATE.

By J. H. EMERSON, M. D.,

PHYSICIAN FOR DISEASES OF WOMEN TO THE OUT-PATIENT DEPARTMENT OF THE NEW YORK HOSPITAL.

I PRESENT the following case as illustrative of difficulties arising in the puerperal state of a kind likely to cause anxiety to the attending physician, in view, especially, of the fact that peritonitis sometimes occurs without presenting features usually laid down as characteristic of it:

Mrs. B., native of the United States, 28 years of age, was expecting her fourth confinement in the third week of February. Her general health was almost always good, and, until January 23d, I do not remember her consulting me about herself during this pregnancy. The action of the bowels, especially in the pregnant and puerperal states, had always been sluggish, and she was in the habit of using the *tamar indien.* At the date named she complained of some itching of the palms of the hands and soles of the feet, and, among other inquiries, I asked about the action of the bowels, and was assured that she had attended to them carefully. On the morning of the 24th she took a cathartic *proprio motu* by way of preparation for labor. I was next summoned about 11 P. M. of that day, the patient having had some intermittent abdominal pains, which she feared indicated the approach of labor, as she had anticipated her calculated time on former occasions. On examination, I found the os soft and dilatable. Ordered an opiate. Was sent for early the following morning, and found labor advancing. The child was born about noon, and the labor presented no features of note except that, on my rupturing the membranes after dilatation was complete, the child was expelled with a single pain.

On the 26th, at 10.30 A. M., the pulse was 102, temperature 99·25° F. Lochia were free, and, the nurse said, dark-colored. The patient complained of some pain in the abdomen and thighs, but there was no abdominal tenderness, except slight in the right iliac fossa. She had not slept well, and had had several loose stools. Ordered a diet of bread and milk; to have tinct. opii, gtt. x, or paregoric, a drachm, p. r. n., and a warm carbolized vaginal wash.

9 P. M.—Pulse 120, temperature 102·5°. Rather restless and excited, with a dry skin. No increase of abdominal tenderness, but some tympanites, with much rattling of wind in the bowels. But one dose of paregoric had been given. There was no stool till 5 P. M., and then there were several liquid ones, the last two almost involuntary. Gave tinct. opii, gtt. x, and ordered gtt. xx if another stool, and gtt. x after each succeeding one; also a turpentine stupe to abdomen.

27th, 8 A. M.—Pulse 124, soft; temperature 99°, skin moist. Says her head feels clear, and that she is refreshed. Abdomen tumid but soft, and only slight tenderness low down in hypogastrium. The uterus is of average size, firm, and tender only on firm pressure. She has no pain, and the turpentine gave relief. Lochia are free. Forty drops of laudanum were given during the night, and there were four or five stools, the last fifteen minutes ago, which was thin and rather pale, and contained some mucus. She slept a good deal and took milk freely, and once tea and toast. Ordered laudanum, gtt. xx, at 9 o'clock, and quinine, gr. x, at once.

At 10.15 A. M. Dr. W. T. Lusk saw her in consultation. Temperature then 98·5°. He suspects fæcal accumulation, and thinks there is no peritonitis, but perhaps slight catarrhal metritis. In accordance with his advice she is ordered bismuth, gr. x, and cret. præparat., gr. x, with tinct. opii, gtt. xx, every two hours. Turpentine stupe to be repeated, and brandy, fl. ℥ ss., with milk, every two hours.

8 P. M.—Pulse 104 and stronger, temperature 98·5°. The abdomen is distended, but not hard. The breasts contain milk. There has been but one stool since 1.30 P. M., though earlier in the day the bowels moved whenever anything was taken into the stomach. She is drowsy, but has slept little. Ordered to continue brandy and powders, but give tinct. opii only once in four hours.

28th, 8 A. M.—Pulse 108, soft; temperature 98°. Some discomfort from a full bladder, which she has not been able to empty. Lochia normal. Breasts much distended, rising nearly to clavicles. Abdomen less tense, and no tenderness, except a little over uterus. I could make out no accumulation in the colon by percussion. She slept a good part of the night, and has had but one stool in the last twelve hours, and that was fluid and dark, but more copious than before.

At 10.15 A. M., patient being unable to empty bladder, I drew with catheter a large quantity of dark urine. Dr. Lusk saw patient again, and it was agreed to suspend the tinct. opii, but continue other treatment.

9 P. M.—Pulse 98, temperature 99·5°. Catheter again. No stool. Stop powders and continue milk and brandy.

29th, 10.15 A. M..—Pulse 120, temperature 102·25°. Tongue much coated. Abdomen more tumid, but not hard. No tenderness except slight in left iliac fossa. Lochia dark, normal in quantity, and free from offensive odor. Milk secreted satisfactorily. Patient passed urine sitting up this morning. No stool, but nurse gave tinct. opii, gtt. xv, once during night. Patient slept several hours, but feels dull. Ordered turpentine to abdomen again, and to have quinine, gr. x.

8.15 P. M.—Temperature 100.75°. No stool. Having had further consultation with Dr. Lusk, I ordered the following powder to be taken at once, viz.: Calomel, gr. v; sodii bicarb., gr. x; sacchar. alb., q. s. ♏. To be followed by an enema at 9 P. M., if bowels are not previously moved. Brandy also to be given then.

9.45 P. M.—Pulse 112, and stronger. Temperature 100°. Tongue less dry. Skin moist. Feels fatigued, but clearer and better. Calomel has produced two stools, preceded by pain, sharp enough at one time to cause vomiting. The first was liquid, the second, after an enema, more consistent and copious, and containing some hard masses as long as the finger. Has a feeling as if the rectum contained more fæces. Ordered to continue milk and brandy, to have tinct. opii, gtt. x, if there is pain, and quinine, gr. v, in the morning.

30th, 10.15 A. M.—Pulse 96, temperature 98·25°. Tongue less coated. Patient has slept well, had no stool and no opiate, and is now nursing her baby. The uneasy feelings in the bowels and the sensitiveness have disappeared. On consultation to-day it was agreed to give beef at dinner, and milk punch twice to-day; also quinine, gr. v, two or three times in the day. Patient also to have an enema of chamomile tea.

31st, 10.15 A. M.—Some discomfort and flatulence. Slept well after midnight. Ordered chloral to-night, if she does not sleep in good season, and to-morrow morning ol. ricin. fl. ℥ ss.

February 1st, 10.15 A. M.—Tongue not as clean, and oil taken four hours and a half ago has not operated, though it griped. Slept well after one dose of chloral. Ordered enema of chamomile tea.

2d, 10.15 A. M.—Pulse 78. Tongue clean. After the enema yesterday patient had an enormously large and hard passage; the nurse, a woman of long experience, says the largest she ever saw, filling the bed-pan. This morning another soft stool spontaneously. General condition all that can be desired.

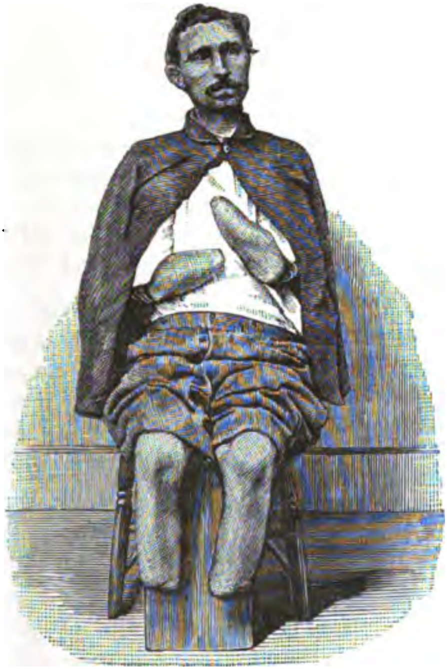
6th.—Patient was given laxative pills, as the bowels remained sluggish, and yesterday had two *very* large and variously-colored stools. Her further progress was not marked by any features of interest.

The points worthy of attention are (1), the occurrence of tolerably high fever with considerable prostration in a puerperal woman which proved to be due to an overloaded colon; (2), the impracticability of satisfying one's self of the existence of this condition by palpation and percussion under the circumstances present, viz., the pregnant condition at first, and, later, the tympanites; (3), the probable influence of the distended colon in precipitating labor, as the child was evidently immature.

A SUCCESSFUL CASE OF QUADRUPLE AMPUTATION.

By W. S. TREMAINE, M. D.,
ASSISTANT SURGEON, U. S. ARMY.

In the winter of 1872 D. Henchy, aged about thirty-five, was brought to the hospital at Fort Dodge with hands and feet completely frozen. Gangrene took place, and a line of separation formed. He refused amputation, and septicæmia set in, with severe rigors, profuse cold sweats, pinched, cadaveric countenance, sweetish odor to the breath, etc. He was treated with quinine and large doses of hyposulphite of sodium, milk-punch, and morphia at night. His general condition improving under this treatment, amputation was proposed and consented to. It was done with the assistance of Dr. J. M. Laing and Dr. Collins. *Both feet and hands* were amputated by the circular method, through sound tissue above the "line of separation." The stumps were dressed with cotton wadding, after the method of Guérin. The dressings were not removed until the twelfth day, when the stumps were found healed, with the exception of a small granulating surface on the left leg.



After the man's recovery a photograph was taken, of which the cut is a copy.

So far as I know, this is the only case on record in which quadruple amputation was performed through *sound* tissues with recovery. Henchy was alive and well last year, when I heard of him as traveling with a circus and exhibiting himself as an object of charity or of curiosity.

Billroth, in his "Surgical Pathology," relates a similar case of frost-bite: "A very sad case occurred in the Zurich Hospital. A powerful young man had both hands and both feet frozen, so that all became gangrenous; the patient could not make up his mind to the four amputations, nor could I bring myself to persuade him to the fearful operation. He died of pyæmia."

Editorials.

INSANITY AND INSPIRATION.

THE defense of insanity having been set up in the trial of the person who gave the late President his mortal wound, it is gratifying that as yet no member of our profession has appeared upon the stand at all eager or even willing to uphold the theory that the prisoner is now or ever has been the subject of such a form of mental disease as would make him irresponsible for his acts. As a body, indeed, the alienists who have been called upon to testify have declined even to characterize him as insane at all. If one or two of the lesser lights did bear testimony intended to convey that impression, whatever weight their opinions might have, either with the jury, with the community, or with the medical profession, is very much weakened, in so far as the sort of insanity meant may be held to imply irresponsibility, by the estimate, given by one of them, that one man in every five of us is insane. It would be interesting to know that gentleman's definition of insanity. If Guiteau's mental condition is that of one fifth of all his countrymen, it is plain that he can claim no greater indulgence than should be accorded to one accused person in every five. It should be borne in mind that there is a wide difference between testifying that Guiteau is insane and imputing insanity to a man assumed to be truthfully portrayed in the following hypothetical question:

> Assuming it to be a fact that there was a strong hereditary taint of insanity in the blood of the prisoner at the bar; also that at about the age of thirty-five years his own mind was so much deranged that he was a fit subject to be sent to an insane asylum; also that at different times after that date, during the next succeeding five years, he manifested such decided symptoms of insanity, without simulation, that many different persons conversing with him and observing his conduct believed him to be insane; also that in or about the month of June, 1881, at or about the expiration of said term of five years, he became demented by the idea that he was inspired of God to remove by death the President of the United States; also that he acted on what he believed to be such inspiration, and on what he believed to be in accordance with the Divine will in the preparation for and in the accomplishment of such a purpose; also that he committed the act of shooting the President under what he believed to be a Divine command which he was not at liberty to disobey, and which belief made out a conviction which controlled his conscience and overpowered his will as to that act so that he could not resist the mental pressure upon him; also that immediately

after the shooting he appeared calm and as if relieved by the performance of a great duty; also that there was no other adequate motive for the act than the conviction that he was executing the Divine will for the good of his country—assuming all of these propositions to be true, state whether, in your opinion, the prisoner was sane or insane at the time of shooting President Garfield.

It will be seen that this hypothetical question holds the idea of an inspiration up as one of the manifestations of the prisoner's alleged insanity. In no other way could that idea serve the purpose of the defense. If it could be shown that Guiteau really believed himself so inspired, the question of his irresponsibility might be seriously entertained. It is evident, however, that he never entertained any such belief, for had he done so he would not at the same time claim to be insane. There are many insane persons who are aware of their insanity, but never yet did a really insane man plead insanity when on trial for crime. Guiteau claims that he is not responsible for killing the President, because such killing was not really his own act, but that of "the Deity"; on the other hand, he shows that he feels the absurdity, or at all events the insufficiency, of this plea, when he is so solicitous to make himself out insane. If he had not declared himself to be insane, his alleged delusion might have stood him in good stead; as it is, he has overreached himself, like many another villain. He has not burned his ships behind him, as a genuine madman would have done; but, by taking such good care to provide an alternative in case his original plea should fail, he has proved his responsibility beyond cavil.

"HORSE-DOCTORS."

The foregoing article was written before Dr. Spitzka went upon the stand. His testimony is to the effect that the prisoner is insane, and we infer that he considers him insane to the extent of irresponsibility. In this we do not agree with Dr. Spitzka, and we think that he might have been so cross-examined as to contravene whatever advantage the defense may have derived from his testimony. These considerations, however, do not close our eyes to the gross indignities that were heaped upon him in court. Not the least of them was the question, whether he was not a "horse-doctor," the term being evidently meant as one of degradation. Has it come to this, that a man can not concern himself with the study of comparative anatomy and physiology and embryology, or devote a portion of his time to teaching in a veterinary college, but a prosecuting attorney may hurl at him the degrading title of "horse-doctor," and that, too, without the slightest reproof from the individual in the ermine? If we could fancy that in Europe an advocate could be found so lost to every feeling of decency as to apply that term to Chauveau, or Bouley, or Bollinger, or Fleming, or Balfour, we need no one's assurance to tell us how summarily he would be dealt with by the bench, by his professional associates in the case, and by the angry spectators. Yet the title is just as applicable to any one of those gentlemen as to Dr. Spitzka. A witness should try by all means to keep his temper, but we confess that we do not wonder that Dr. Spitzka showed some irritation, and that he intimated that he had never prescribed for any of the lower animals except two-legged asses.

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Special Articles.

CHARBON AND THE THEORY OF PREVENTIVE INOCULATION.*

By ALEXANDER DUANE, M. D.

The morbid conditions which have been variously designated as charbon, anthrax, malignant pustule, and splenic fever have of late received considerable attention; and this, not so much on account of any recent increase in their diffusion or their severity, or of the development of any remarkable facts in regard to their pathology, but because of the discovery of a method for their prevention, which not only promises to check the ravages of these deadly affections themselves, but also claims a wide range of applicability among other and more common diseases. It is, in short, on account of the apparent demonstration which it has afforded of the possibility of preventive inoculation in all zymotic diseases, that the study of charbon has assumed importance. For it will be readily understood that, if we can accomplish for measles, scarlatina, typhoid fever, and the various malarial disorders what we have effected for small-pox, we shall have made a very great step in advance. Of course, the present attempt is by no means the first which has been made in this direction, and the constant failure hitherto to obtain any satisfactory result has, doubtless, rendered many sceptical of the feasibility of any new proposition of the sort. But there is a difference between this attempt and the others which have preceded it. Former failures have been due to the fact that our inoculations, made, as they were, with virus which possessed all its original power, gave rise to a disease which was in no respects milder or less dangerous than the one which it was intended to forestall. The only exception has been in the case of small-pox, which we have learned to prevent by the use of an inoculative material which Nature herself has contrived to modify and attenuate in a peculiar manner. Now, Pasteur and others believe that they have found a way by which the virus of charbon, chicken-cholera, and septicæmia may be likewise so attenuated as to produce on inoculation only a mild form of these several affections.

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* Klebs.—"Brit. Med. Jour.," Aug. 13, 1881.

Pasteur.—"Comptes Rendus de l'Acad. des Sci., xc, xcii; "Brit. Med. Jour.," Aug. 14, 1881.

Pasteur, Chamberland, et Roux.—"Bull. de l'Acad. de Méd.," Oct. 21, 1879, Mar. 8, June 14, 1881.

Davaine.—"Comptes Rendus de l'Acad. des Sci.," lvii, lix.

Fokker.—"Centralbl. f. d. med. Wissensch.," Oct. 1, 1880, Jan. 8, 1881.

Arloing, Cornevin, et Thomas.—"Rev. de Méd.," Jan., 1881.

Huber.—"Dtsch. med. Woch.," Feb. 19, 1881.

Colin.—"Bull. de l'Acad. de Méd.," Jan. 25, Mar. 1, 1881.

Villemin.—*Ibid.*, May 17, 1881.

Telamon et Derignac.—"Rev. de Méd.," May, 1881.

Toussaint.—"Bull. de l'Acad. de Méd.," Mar. 8, 1881.

Bouley.—*Ibid.*, July 26, 1881.

Semmer.—"Centralbl. f. d. med. Wissensch.," Oct. 29, 1880.

Grawitz.—"Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," lxxxvi, 1, 1881; "Berl. klin. Woch.," Apr. 4, 1881.

The authoritative position occupied by such investigators should lead us to examine carefully the claims which they present. For it will be remembered that it is to these same *savants* that we owe those researches and those generalizations which gave the first impetus to antiseptic surgery, and which now form its scientific basis. To-day even those who hold that the theory of septic infection by germs is false acknowledge that antiseptic surgery is a practical success; and, in the same manner, we may hope that, even if the present investigations bring us no nearer than before to a knowledge of the nature of infection and inoculation, they may nevertheless yield an abundant harvest of practical benefits.

The present theories of inoculation are intimately connected with the hypothesis that different morbid processes are induced by the activity of specific forms of bacteria. It is these bacteria which constitute the special virus of a disease, that by which it is both developed in one individual and communicated to others; and the intensity of the virus, and hence of the disease itself, is in direct proportion to the vigor and the rapidity of multiplication of these bacteria. Now, the whole secret of the modern theory of preventive inoculation is, by some means or other, so to weaken the vitality of these minute organisms that, when introduced into the system, they will either show themselves less energetic or multiply less rapidly, and accordingly set up a mild grade of the disease, severe enough, however, to insure immunity against a second attack.

It is obvious that our first task must be to settle the questions, whether bacteria are actually present in the different zymotic diseases, and, if they are present, whether they take an active part in inducing the morbid process, or are only its harmless accompaniment. For it may well be asked: Are we sure, after all, that this bacterium is such a terrible thing? May it not be quite inoffensive, and guiltless of the charges laid against it? And then very pertinently comes in the counter-inquiry: If it is such a destroyer, how can we hope to use it against its own kind? Unfortunately, while the answer to the first question is pretty obvious, that to the last inquiry can not be so readily made. It seems indeed evident that the bacteria are really possessed of the terrible properties which have been ascribed to them. It lies, however, out of the scope of this article to give even the briefest account of the researches by which the presence of bacteria has been proved in most of the infectious diseases, and their direct agency in the production of the morbid processes established. Professor Klebs, however, has given such a clear and succinct account of the lower organisms, their varieties, and the diseases with which they are associated, that a brief abstract will be of service as a general introduction to the subject in hand.

Klebs divides the microscopic organisms productive of disease into three classes: the hyphomycetæ, the algæ, and the schizomycetæ. The hyphomycetæ require an abundant supply of oxygen, and hence give rise to few morbid processes. They mostly exist upon the surface, and when they penetrate more deeply they seem to do so by becoming habituated to nitrogenous food. They include the vegetable parasites well known to dermatologists, such as the achorion and the trichophyton, and also the aspergillus, and the oïdium of thrush. Of the algæ the only important variety is the leptothrix, which may cause concretions, and is always present in carbonate-of-lime calculi. The schizomycetæ are the most important class. They comprehend two subdivisions, the bacilli and the coccobacteria. The former consist of threads, containing in their interior spores, which on becoming free can themselves develop into threads. Their whole development requires plenty of oxygen, and is carried on upon the surface of fluids. Moreover, as will be seen from the accompanying list, they all give rise to diseases springing "from influences which are conveyed to the human body more or less directly from the soil." Klebs gives the following list of species: 1. *B. anthracis*, 2. *B. malariæ*, 3. *B. typhi abdominalis*, 4. *B. typhi exanthematici*, 5. *B. of hog-cholera*, 6. *B. leprosus*; and suggests that cholera and yellow fever may belong to the same group. Besides these constitutional disturbances, local affections may be produced by bacilli. For instance, there is a form of gastritis so caused, and hence termed *gastritis bacillaris.*

The coccobacteria are collections of micrococci in groups united by a gelatinous substance (zoöglœa). The separate micrococci prolong to form rods, which sprout and develop into groups of the original structure. The coccobacteria are composed of two genera, the microsporina and the monadina. The former require a medium poor in oxygen, are developed at the bottom of fluids, and their separate micrococci are gathered into spherical masses. Their presence characterizes the occurrence of various septic processes and of diphtheria. The monadina require a medium rich in oxygen, are developed on the surface of fluids, and the micrococci are gathered into layers. One variety of the monadina is found in certain inflammatory processes, especially such as do not lead to suppuration. Among these are rheumatic affections and the visceral complications of rheumatism; croupous pneumonia; erysipelas; inflammation dependent upon puerperal infection; and mumps. A second variety of monadina characterizes the acute exanthemata, such as small-pox and vaccinia, scarlatina and measles. A third variety is found in the infective tumors, such as those of tuberculosis, syphilis, and glanders.

We have given this classification of Klebs's, not because it is universally accepted, or even because it is regarded as in any way authoritative by those who believe in bacteria as the origin of disease, but because it serves to show how thoroughly men of science are imbued with a sense of the reality of this theory, when they ticket every disease with its appropriate micro-organism, and, in fact, make the latter the index of the place which the former should occupy in a nosological list. But this very completeness is itself suspicious; and doubtless there are many among our readers who are ready to exclaim, How is it possible that these organisms, which a diligent and oft-repeated search has hitherto failed to bring to light, should now be so well known as to admit of this elaborate classification?

But an answer is ready at hand. The methods which heretofore have been employed for the demonstration of these bacteria, micrococci, or what not, have been insufficient. These organisms, in the condition in which they circulate in the blood, either from their minuteness or from some other peculiarity, are not usually recognizable by ordinary microscopic examination. Some are now made out by the use of very high powers, such as before were not applied to this class of work. But most still require for their detection the subjection to some process which will cause their development into bodies of readily discernible size. In other words, having caught our beast of prey, while still in the infant state, we must feed and fatten him, among suitable surroundings, till he attains adult proportions. This is just what the so-called "culture methods" of Pasteur and others aim to accomplish. A fluid is taken, which experience has shown to be suitable for the development of the germs in question, and boiled, so as to kill any germs or bacteria which may be contained in it. It is then inclosed in tightly-sealed vessels, which have also been freed from germs by a process of chemical purification, and the substances supposed to contain bacteria or their spores are then introduced, with the observance of all possible precautions to avoid contamination by any impurities present in the air. The contents of the vessels are from time to time drawn and examined; and it is found that, whenever the spores of any given bacterium were present in the test-substance, a copious development of the full-grown bacteria themselves soon takes place in the culture fluid. Hence the changes taking place in the culture fluid are a sure index of the character of the substances introduced, so far as the presence or absence of bacteria in the latter is concerned.

This method has been applied to a number of affections, but with the most success to charbon and to chicken-cholera. To the former it was applied in 1876 by Koch and Pasteur; to the latter in 1879 by Toussaint and Pasteur. The culture fluids suitable for the propagation of the specific germs are different for the two diseases. While in the case of charbon the bacteria developed readily in either neutralized urine or a decoction of beer-yeast, neither of these media was suited to the active growth of the bacterium of chicken-cholera, which, however, increased with great rapidity in sterilized chicken-broth. Pasteur's accounts of the way in which his experiments were conducted are found in his communications to the Academy of Sciences in Paris, and also in his address delivered before the International Medical Congress.

It must not be supposed, however, that, because the presence of bacteria is most readily demonstrated by this indirect process, it can not also be established directly. So long ago as 1850, long before the culture method was applied for this purpose, Davaine had discovered by direct microscopical examination the existence of the bacillus anthracis in the blood of charbon. As, however, the occurrence seemed to be an inconstant one, he thought little of his discovery, till in 1863, taking the subject up again, he found that in every case of charbon produced by inoculation the characteristic bacteria were found in the blood as soon as the period of incubation was passed. Afterward he made out the existence of the bacteria in the substance of the malignant pustule, which is regarded as the special local lesion of charbon.

Nevertheless, cases of the disease have been described in which no bacteria could be discovered even on the most careful examination. Still, considering the uncertainty attaching to all such negative results, and the rarity of the cases in which bacteria have not been observed when due precautions were taken, we may set aside such instances as not materially impugning the truth of the statement which Davaine has laid down. Some alleged instances of charbon without bacteria are, doubtless, based upon a mistake in diagnosis, as apparently occurred in one case which Davaine himself mentions. In regard to others, we may apply the caution which Grawitz gives, that we are not always to expect to find bacteria even where they have been present, as they may die and disappear before the effects of their action are effaced. Fokker, too, believes that the charbon bacteria often elude observation, because they are broken up into a granular detritus by the action of some destructive agent, resident in the spleen, and in this form are washed away and disappear.

The bacterium thus found to be a constant accompaniment of the morbid process which constitutes the disease of charbon is a narrow, filamentous, rod-shaped body, 4 to 12 μ or more in length; generally straight, sometimes bent at one, or more rarely at two points; and is never observed to have a power of independent movement. It increases both by fission and by the extrusion of spores, which may be seen to occupy its interior. In the latter respect it differs from the bacterium of chicken-cholera, whose properties have been described most accurately by Pasteur. The difference is important, as necessitating a different method of procedure in the two cases, when the strength of the bacteria infusions is attenuated for purposes of preventive inoculation.

We have hitherto spoken as if the bacillus anthracis were acknowledged by all to be an entity quite distinct in character from any other form of bacterium or micrococcus. And, indeed, if it is rightly regarded as the causal element in the disease, we should naturally expect it to present a distinct and specific form and nature, to correspond with the specific character of the affection which it excites. But Fokker and likewise a number of other biologists do not hold to any such hard and fast line of distinction between this and other varieties of minute organisms. They believe that a micrococcus represents merely one stage in the development of a bacterium, and that the different genera which have been established among all these bodies are largely artificial. Fokker, following Büchner maintains the essential identity of the bacillus anthracis and the bacillus subtilis (hay-fungus, bacillus of butyric fermentation), it being found that inoculation with the latter will produce the symptoms of charbon. He also supposes that some alleged cases of charbon without bacteria are really cases in which the long filamentous bacillus subtilis has been the exciting cause of the disease.

But a more important question, and one which more directly affects the possibility of preventive inoculation, still remains for solution. Although we may have proved the constancy of bacteria in charbon and perhaps in other diseases, and have even shown that there is a specific variety for each disease, can we, it will be asked, assert that these bacteria are the efficient agents in developing the lesions of the malady, and in transmitting the infection? In other words, do they constitute the virus of a disease? To these questions, so far at least as charbon is concerned, we may unhesitatingly give an affirmative answer. The experiments of Davaine, of Koch, Pasteur, and Toussaint prove conclusively that the inoculation of this disease, in order to be successful, requires the presence of the bacilli in the inoculating material. Davaine found that, if a rabbit was inoculated with the blood taken from an animal during the incubation stage of charbon, that is, when no bacteria had yet made their appearance, the operation failed to induce a transmission of the disease. If, however, the inoculation was performed with blood in which bacteria had appeared, the disease was reproduced in the inoculated animal. Similarly, if a culture fluid in which the bacilli anthracis have developed is employed as an infecting agent, it always produces a development of the disease; but it can readily be shown that this power of transmission resides in the solid matters which contain the bacteria and not in the liquid portions of the inoculating substance. This was shown by a comparison of the effects resulting from injecting the two portions, each by itself. For this purpose, the solid was separated from the liquid portion of the culture fluid by sedimentation or by filtration. Inoculation with the liquid portion was now found to be entirely without result, while the solids were just as potent as ever. And this is true, not only of the primary culture fluid, sown with bacteria germs obtained from a charbon patient, but also for a whole series of derived culture fluids, rendered virulent by the addition of a few drops of the primitive fluid and by the subsequent development of a crop of bacteria. Indeed, there is perhaps no more striking fact in the whole range of pathology than the persistence with which the bacteria retain their virulent properties and the extreme degree of dilution which they can bear without any apparent decrease in activity. A remarkable illustration of this quality is afforded by some facts collected by Pasteur and his colleagues. They showed that earth gathered from the surface of the ground over trenches where animals affected with charbon had been buried ten years before developed the bacilli anthracis in suitable culture fluids, and was almost as fatal, when inoculated, as if it had been a material derived immediately from the infecting source. In cases where inoculation with infusions of such earth produced septicæmia and not charbon, the explanation was advanced that the bacteria of the latter disease had been supplanted by those of the former; for it is well known that these organisms, which will yield to nothing else, will give place to each other, and that the development and the inoculability of charbon are prevented by the presence of putrefactive processes. All these experiments were conducted with great care by Pasteur and his co-laborers, and were repeated with satisfactory results by a special commission appointed to investigate the subject. The report of the latter to the Academy of Medicine was made by Villemin. To be sure, Colin has brought forward opposing experiments of his own, but the spirit in which he conducted them and the way in which he shuts his ears to any argument or counter-proof are characteristic rather of the partisan than of the true man of science, and go far to discredit the results which he obtained.

Of course, even if the presence of bacteria is essential to the development of charbon, it may still be a matter of doubt whether these little bodies act by virtue of the direct changes which they induce in the surrounding tissues in subserving their own nutrition, or whether they are merely the carriers of a specific ferment which itself performs the work of destruction. Perhaps an argument for the latter view is found in the alleged want of specific form and character in the different varieties of bacteria, and the apparent replacement of one variety by another without any change in the disease which they accompany. But an argument upon the other side is found in the very fact, which we have just indicated, of the persistent maintenance of a special morbid power through a great number of generations of bacteria. This fact is, indeed, very difficult of explanation, if we admit the second theory to be true. Moreover, a little consideration will show that the argument which would require a specific form in order to fulfill a specific function is hardly valid, as it is a mere inference drawn from the analogous relations existing in higher organized beings. It seems, then, more rational to accept the hypothesis that the bacteria are themselves the efficient causes of the changes with which they are associated.

The facts of inoculation and of its dependence upon the presence of bacteria have been chiefly demonstrated by experiments upon animals, but Telamon and Derignac showed that exactly the same conditions held good for the disease as it occurs in man. In two cases which they attended, an examination of the blood and the matter from the malignant pustule revealed no bacteria; but, on cultivation in a suitable medium, both substances developed the regular bacteria of charbon, which reproduced the disease when inoculated in animals. It is noteworthy that cultivation of matter taken from the mass of inflammatory œdema surrounding the malignant pustule developed, not the charbon bacilli, but the paired micrococci (diplococci), which Pasteur regards as characteristic of suppuration, and, when inoculation was made with this culture fluid, not charbon, but simple abscess resulted. Another valuable feature of the observations of these authors is their demonstration of the diagnostic and prognostic importance of the culture method. Two cases presented themselves which closely simulated cases of malignant pustule. Examination of the blood, to be sure, showed no bacteria; but this often happens in charbon, hence the diagnosis was in doubt. To settle the question, portions of the fluids at the affected regions were submitted to cultivation. In one case they showed the presence of diplococci, but not of bacilli. Here the diagnosis was that of suppurative inflammation, and the prognosis was good. In the second case no bacteria were developed, and the diagnosis was non-suppurative inflammation, the prognosis being likewise good. The result fully carried out the prediction in both instances.

We are now prepared to understand how the culture method may be applied to the purposes of preventive inoculation. Those experimenters who employed this method, and saw how by its aid they could cause the development and propagation of the bacteria, were naturally led to the belief that by a modification of the process they could produce corresponding alterations in the growth and activity of these organisms. They could, it was thought, impose such conditions upon the growing and multiplying bacteria that their development would be arrested and their energy much impaired. To use a phrase which has become common with these writers, they might attenuate the virulence of these bodies. Now, inoculation with an attenuated virus would still produce the disease, as long as any activity yet remained in the bacteria injected; but the character of the affection so produced would, they argued, be much less severe than usual. But it is well known that, in charbon and in nearly all the inoculable diseases, a single attack produces complete or partial immunity against a recurrence. The inoculation of an attenuated virus ought, therefore, in all these affections, to produce the same beneficial result that vaccination accomplishes in the case of small-pox. Accordingly, the one requisite for bringing about this very desirable end would be the discovery of some means by which the virulence of the bacteria contained in the culture fluids should be very much diminished, without being entirely abrogated. Imbued with this idea, different experimenters sought various methods of accomplishing this object. Pasteur, in his address before the International Medical Congress, gives a sketch of his own efforts in this direction. He at first thought that he could diminish the virulence of the bacteria by transplantation from one culture fluid to another. To this end, he formed one culture fluid in the ordinary way, sowed it with bacteria, and, when it was swarming with the latter, took a few drops from the vessel and placed them in another vessel containing culture fluid. A few drops from the second vessel were transferred to a third, and thus the process was repeated, on the plan of homœopathic attenuations, until a very high degree of dilution was reached. But it was found that the last vessel developed as many and as virulent bacteria as the first did. This scheme, therefore, was a failure. In carrying it out, however, with the bacterium of chicken-cholera, he hit upon a new plan of attenuation. This consisted in prolonging the intervals between the acts of transplantation until the culture fluid was nearly exhausted of nutritive constituents. This plan succeeded admirably. It was found that now with each successive dilution the virulence diminished until a point was reached in the series at which inoculation was no longer fatal. But inoculation still furnished immunity, or, following the somewhat barbarous technicality of the French authors, the culture fluid had become of "vaccinal" efficiency. So far as chicken-cholera was concerned, the desired end was reached. But, in endeavoring to apply the same method to the prevention of charbon, a difficulty arose. The bacilli anthracis are propagated in part by spores, to which, indeed, they owe most of their virulence. Now, the spores, being unaffected by the attenuating process, will still communicate the unmodified form of the disease when the culture fluid is inoculated. Hence some means had to be devised by which the development of spores could be prevented without abolishing the life of the bacillus. Toussaint discovered that this could be effected by warming the culture liquid to within one or two degrees of the point at which the bacillus ceases to live (45° C.). When this is done, the charbon virus loses its excessively active character and becomes of "vaccinal" efficiency.

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The reality of the immunity produced seems satisfactorily proven. The experiments of Toussaint, of Pasteur, and of the investigating commission, whose labors are recorded in the report delivered by Bouley, seem both precise and extensive enough to please the most exacting. They were not, however, unanimously concurred in. Every discussion of the subject in the Academy of Medicine was attended with much heated argument and personal recrimination; so much so that the secretary's report of the proceedings often furnishes the most amusing reading. Colin, especially, the refractory Colin, whom his opponents delight to call an "obstructionist," seemed to take particular pleasure in opposing the results of Pasteur and his collaborators. But his opposition, as in the previous instance, seems rather factious and unreasonable; and, as Bouley well observed in discussing Colin's paper, the negative results which the latter obtained are by no means of equal value with the much more extensive series of positive results gained by Toussaint and Pasteur.

The prophylaxis of charbon, while of great interest to the veterinary surgeon, would scarcely lay much claim to the attention of the ordinary physician, who makes human diseases his study, were it not for the prospect that this discovery offers of application to a number of other affections. Already an instance of such an application has been discovered in the case of septicæmia. In this case the virus is attenuated either by Toussaint's method or by Chauveau's process, which consists in the inoculation of very minute portions of the infecting material. Semmer's report of Krajewski's experiments, made after both methods, seems to demonstrate the possibility of preventive inoculation in this disorder.

We may sum up our knowledge in regard to preventive inoculation in the following statement:

One disease, small-pox, is undoubtedly preventible by this means; three others, charbon, chicken-cholera, and septicæmia are probably preventible; and possibly, though of this there is grave doubt, hydrophobia may be added to this list. The number of diseases, however, which, theoretically, should be amenable to this form of prophylactic treatment, is a large one; for it should include all affections of which one attack procures immunity against another. It is possible that future researches will lead to the realization of this prospect, and will enable us to check the ravages of all the zymotic diseases, as we have already learned to control the spread of small-pox.

The very fact of the immunity which any one disease of this class furnishes against its own recurrence is a matter of considerable interest to the speculative mind. Many attempts have been made to account for this extraordinary phenomenon, but none have been altogether satisfactory. Pasteur, in discussing the nature of chicken-cholera, defends one view, which has been called by Klebs the "exhaustion" theory. This supposes the existence in the body of a certain substance which is necessary for the growth of the special virus, but which also is entirely consumed on the occasion of the first attack. Opposed to this is the "antidotal" theory of which Chauveau is a prominent champion. According to this hypothesis, when the virus enters the body it is accompanied by another substance, which remains after the effect of the former has worn off, and exerts an anti-fermentative action which effectually prevents any subsequent action of the virus. Pasteur objects to this theory that, if to an exhausted culture fluid, which upon this hypothesis should contain an anti-fermentative body preventing subsequent action, a new portion of culture fluid be added, the properties of the latter will not be destroyed.

A recent article by Grawitz states very clearly the arguments against both theories. In opposition to the first, or "exhaustion" hypothesis, he urges that, if the substance which the virus requires for its sustenance is a normal constituent, it would be replaced, as all other constituents are, after its consumption. In the second place, it seems incomprehensible that a substance which will sustain myriads of disease-germs, in the case of a severe attack, should be entirely exhausted by comparatively few germs, as in an ordinary inoculation. Moreover, in some experiments which Grawitz conducted, he succeeded in producing a diseased condition by inoculation with mold-fungi, and this inoculation furnished immunity against a recurrence of the affection. Now, mold-fungi neither cause chemical changes in the fluid in which they grow, nor do they require for their development any other materials than oxygen and albumen, both of which they would always find in the blood. A further objection to the exhaustion theory, which Grawitz does not mention, is that on this supposition there must be in the blood a different substance for each variety of virus, as one disease does not secure immunity against a different one. The antidotal theory is open to no less grave charges. No such anti-fermentative body is found in the culture fluids along with the ferments; even if formed, such a small quantity would enter the blood during inoculation, when a small quantity of virus is used, that it would not be sufficient to counteract the next supply; and, even if present in sufficient quantity, it would speedily be removed from the body. But there is in addition a general objection against either theory, and this is that experiment shows that the blood is as capable after inoculation as before of developing the germs of the disease. According to either hypothesis, the blood should be sterile to this particular virus as long as immunity lasts.

Grawitz's own explanation of the principle of immunity is an ingenious one. He says that it consists in an "accommodation of the tissue-cells to the energetic assimilative powers of the disease germs, and its persistence for months and years depends upon the descent of this heightened physiological energy of nutrition from one generation of cells to another." He suggests that the inheritance of immunity may extend beyond the individual's life. In this way would be explained the comparative mildness which many of the infectious diseases now exhibit in comparison with their virulence in past ages. We, who are descendants of ancestors who had small-pox and other affections in their severest form, now in some degree reap the benefit of their misfortune, and enjoy a partial immunity from the diseases under which they suffered.

In conclusion, we may remark that the acceptance of the theory of preventive inoculation for any particular disease requires the demonstration of the following postulates:

1. The disease in question is characterized by the constant presence of a definite species of bacteria, or of their spores.
2. These bacteria, if not directly demonstrable in the blood of the patient, can be shown to exist by their subsequent development in suitable culture fluids, to which a portion of the blood has been added.
3. These bacteria are the direct agents in the development and transmission of the disease.
4. An attack of the disease produced by inoculation with these bacteria produces complete or partial immunity against a second attack.
5. The virulent power of the bacteria may be so weakened by suitable treatment of the culture fluids in which they are prepared that their inoculation produces only a mild form of the disease, which is still efficacious in preventing a recurrence.

We think that a review of the papers which we have cited will show that these postulates have been proved for charbon, at least; and, further, they seem to authorize the extension of similar principles to the other infectious diseases. The whole matter is, to be sure, still under discussion, and much yet remains to be done before we can affirm absolutely the truth of the theory of preventive inoculation, or its feasibility in practice. Enough has been done, however, to show the probability of ultimate success, and to serve as a stimulus to new investigations in this promising field of therapeutics.

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Reviews and Literary Notes.

The Science and Art of Midwifery. By William Thompson Lusk, A. M., M. D., Professor of Obstetrics and the Diseases of Women and Children in the Bellevue Hospital Medical College, etc. With numerous illustrations. New York: D. Appleton & Co., 1882. Pp. xviii–687.

First Notice.

This work makes its appearance but a few weeks later than that of Dr. Glisan, so that it may almost be said that the two authors simultaneously break the spell that seems for many years past to have bound those among us from whom we might fairly look for the production of a text-book that should furnish the general profession with the sum of our knowledge of obstetrics at the present day. From the wider scope of Dr. Lusk's undertaking, it has no doubt involved several years' labor, and he may therefore almost as justly be credited with having broken the silence alone as if his book had actually been the first in the field. This we say without the slightest thought of disparaging Dr. Glisan's treatise, as will be seen by the hearty commendation which we accord to it on another page. Dr. Lusk's work is so comprehensive in design and so elaborate in execution that it must be recognized as having a status peculiarly its own among the text-books of midwifery in the English language. In regard to some features, indeed, it is the only one of them all that gives anything approaching a satisfactory presentment—notably is this the case in the matter of pelvic deformities. In the past we have clung somewhat too fondly to the conviction that this subject was of little interest to us in this country, further than that of curiosity, inasmuch as decided contractions and distortions of the pelvis have been, to say the least, uncommon in American women. But no one can say how long this will be the case, bearing in mind the continuous stream of immigration and the fact that our social condition as a community seems to be approaching that of European nations, such change working manifold modifications of our physical make-up, improving it in some respects and causing it to deteriorate in others. That the rising generation of practitioners will do well to heed this consideration, and that they are already beginning to feel the need of a closer acquaintance with this particular aspect of the obstetric art than their fathers found necessary, scarcely admits of question.

We have not singled out this topic, however, as being by any means the most striking feature of Dr. Lusk's work, for it teems with matter almost novel to American readers, taking them as a whole. This statement does not imply at all that the finished work of foreign writers has simply been clothed in the English language in place of the original French and German. However much Dr. Lusk's modesty may have led him to put his own personality in the background in so far as appearances go, those who are most familiar with French and German obstetrical writing will most clearly perceive how thoroughly and with what originality of thought he has gathered together and systematized the stray evidences of progress in this department of medicine; how with an assayer's carefulness he has tested them, and how he has fertilized them with the infusion of a stream of such practical discernment and acuteness as come only from personal struggles with the problems that arise in every-day practice.

We are inclined to the view that Dr. Lusk would scarcely have shown himself so fitted for the task before him had he not been a physiologist before he was an obstetrician. An under-current of physiology, indeed, runs all through the book, and this fact, to our mind, enhances its real value almost beyond estimate. So carefully has the work been prepared, so in accordance with the true spirit of study, and with such entire freedom from the motives that lead some, men to write treatises, that we shall have occasion, in a subsequent notice of it to quote far oftener than to criticise.

Text-Book of Modern Midwifery. By Rodney Glisan, M. D., Emeritus Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Willamette University, etc. With one hundred and thirty illustrations. Philadelphia: Presley Blakiston, 1881. Pp. 639. [Cloth, $4·00; sheep, $5·00.]

First Notice.

The appearance of Dr. Glisan's book preceded that of Dr. Lusk's by a few weeks, thus actually breaking the long silence that has been maintained by

American obstetricians in so far as text-books are concerned. Although less extended in scope than Dr. Lusk's work, displaying less research, and treating the subject more superficially—constituting, in short, a less important addition to obstetrical literature—Dr. Glisan's is not an unworthy rival of the text-books with which the profession in our country are supplied. In many points, which we shall specify in our further notice of the book, it supplements them to advantage, and we believe that no one, whatever may be his familiarity with other works, or however ripe his own experience may be, can read it without profit or can afford not to read it.

In its general tone the work is magisterial, for there are but few references to contemporary literature, and there is but little close argument. The author's position and attainments undoubtedly justify this, and it is even to be wished that he had carried it out more fully, rather than, as is the case, have given in many instances the divergent views of others without sufficiently guiding the reader to a just appreciation of their respective claims to acceptance. It seems to us that an author makes himself felt more, especially in a text-book, if he is either dogmatic throughout or argumentative throughout; the two styles can rarely be mingled without a sacrifice of force. Of the two, the magisterial is the less to be commended, both because it is less in accord with the general spirit of scientific writing in our times, and because it gives the ordinary reader no clue to a critical appreciation of its matter. Nevertheless, such a work often has its value, and that to a very decided degree; but that value must of necessity depend wholly upon the character of the writer. We have already stated our impression that Dr. Glisan is to be credited with a fitness for such work.

From what we have said it will have been inferred that the clinical element scarcely figures in the book; here and there, however, we find brief allusions to specific cases that have come under the author's observation. Many of these allusions are put in the form of anecdotes—for the most part interesting, and often quaint and amusing, but at times containing expressions decidedly at variance with the graceful and dignified diction that marks the greater portion of the book. If the author had now and then given an analysis of his own experience upon certain points, it would have been better, we think, than these stray reminiscences, introduced apparently for the mere sake of drawing a moral. This and certain matters of style lead us to regret that Dr. Robert P. Harris, who was charged with supervising the publication of the work during the author's absence from the country, "preferred to leave the composition and its orthography as nearly intact as possible." We can not but think that a freer exercise of his editorial discretion would have been advantageous, not only in the item of style, but also as to the arrangement of the matter, for we find an almost complete failure to separate the prime divisions of topics from the subdivisions of less importance; moreover, the same subdivision is discussed separately in different parts of the book, the two being sometimes at variance.

This finishes what we have to say in a general way. In a future number of the journal we shall comment upon the particular points of the book that have attracted our notice.

Medical Electricity: a Practical Treatise on the Application of Electricity to Medicine and Surgery. By Roberts Bartholow, A. M., M. D., LL. D., Professor of Materia Medica and General Therapeutics in the Jefferson Medical College of Philadelphia, etc. With ninety-six illustrations. Philadelphia: Henry C. Lea's Son & Co., 1881. Pp. xx–17 to 262, inclusive. [Price, $2·50.]

This is the latest work on electricity offered to the profession. The author first describes at some length the meaning of certain terms used by electricians, the different kinds of electricity, and the batteries used. He then takes up electro-physiology. Part III is devoted to electro-diagnosis, part IV to electro-therapeutics. The next part considers electricity in surgery, and, finally, two chapters are given to a consideration of thermo-electricity. The description of the different forms of electricity is a good survey of our present knowledge of the subject. When the author comes to the practical application of the different forms of electricity, there is the same criticism to be made as of all his other teaching—he is too arbitrary, and paints the good results of treatment in too rosy a hue.

This kind of teaching may be popular, but it is not safe. The young practitioner who reads this book would think the practice of medicine, at least in a therapeutical way, consisted almost entirely in the application of electricity. It seems to us too much credit is given to electrical treatment, and especially is this the case if other remedies besides electricity are used at the same time. To illustrate: In diphtheritic paralysis electricity is given the credit of bringing about many cures, whereas the paralysis which follows diphtheria tends always to recovery. It may be hastened by tonics, especially strychnia. In the syphilitic taint and in the rheumatic diathesis, where remedies are being administered for the relief of the blood condition, the author gives too much credit to the influence of electricity. No doubt the treatment by electricity in many of these cases does aid in bringing about good results. The first portion of the work, in which the apparatus is described and the mathematical laws are referred to, is much too difficult reading for at least the average medical student, and, we might say, the large majority of practitioners. Although the book is designated "Medical Electricity," the author devotes several chapters to electricity in surgery and the thermo-electric cautery. It would have been better if he had either "stuck to his text" or gone more fully into this part of the subject

The book is thoroughly padded, and many of the illustrations are unnecessarily put in, as if to make a large-looking book.

A Manual of the Practice of Medicine, designed for the Use of Students and the General Practitioner. By Henry C. Moir, M. D. New York, 1881. Pp. x–455.

This book has at least one thing to recommend it; it is small in bulk. In the preface the author enumerates the standard works from which he has made a *résumé*, but Flint's admirable work on practice is not mentioned, nor is Reynolds's, nor is von Ziemssen's Cyclopædia. The author has laid out for himself a most difficult task, condensation being his aim. He has condensed in many instances at the expense of accuracy. As an instance, he says: "The crepitant râle is due to the agglutination of the walls of an air-cell, which are subsequently separated by the entrance of air." No reference is made to the production of a crepitant râle between the pleural surfaces. A book which makes such inaccurate statements as the following is unsafe to put into the hands of students: "High pitch is accompanied by short duration and great intensity." This is true of emphysematous percussion, but not of the dull percussion note. "Low pitch is accompanied by long duration and diminished intensity"—an equally untrue statement. We have noticed a number of such inaccuracies. On page 367 is a statement which might lead to trouble if the plan of treatment of uræmic convulsions were followed as given by the author. He says: "For uræmic convulsions morphine should be administered hypodermically: ♏ x [not specifying what, but presumably Magendie's solution of morphine is referred to], and if that does not arrest them, give ♏ xx every two hours." It is in acute uræmic convulsions that morphine can be used safely. If it is used in cases where the disease has existed for a long time it may hasten the fatal result.

There are many good features in the book. The symptoms are classified in such a way that comparative diagnoses may be made. Symptoms are so grouped that one may run over them at a glance. It is surprising how much can be compressed into a small book like this, and yet how much is left out. In order to read such a book with benefit it is requisite that the reader be already well informed, and he should take it up merely to refresh his memory. This one is perhaps as good as any of its kind, barring some inaccuracies like those referred to. The list of prescriptions at the end does not add to its value.

Photographic Illustrations of Cutaneous Syphilis. By GEORGE HENRY FOX, A. M., M. D., Clinical Lecturer on Diseases of the Skin, College of Physicians and Surgeons, New York, etc. Parts 7, 8, 9, 10, 11, 12. New York: E. B. Treat.

THESE parts, completing the work, contain six representations of the tubercular syphilides, one of the pustulo-crustaceous syphilide, five of the ulcerative syphiloderma, one of the gummatous syphiloderma, one of the ulcerative scrofuloderma, one of chancre, one of chancroid, one of periadenitis, one of condylomata lata, four of hereditary syphilis, and four of syphilitic dactylitis. It will be seen that the series (forty-eight plates in all) includes more than the strictly cutaneous manifestations of syphilis. Indeed, it is a very fair exposition of the more common of the superficial lesions of that disease. We have before spoken of the beauty and fidelity of these plates, and those features are no less conspicuous in the later than in the earlier parts of the work. The usefulness of the pictures seems to us unequaled, and the accompanying text is admirably suited to its purpose.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Vol. II, Berlioz-Cholas. Washington: Government Printing-Office, 1881. 4to, pp. [12]–990.

THE second volume of this great work is, no less than its predecessor, a marvel of completeness and accuracy, reflecting the highest credit not only upon the gentlemen immediately concerned in its preparation, but also upon the national legislature, which has wisely and generously authorized, in furtherance of the world's common pursuit of medical knowledge, an expenditure that such bodies are apt to shrink from unless the *cui bono* is apparent to the unlettered and to those who do not look beyond the present.

Coulson on the Diseases of the Bladder and Prostate Gland. Sixth edition. Revised by WALTER J. COULSON, F. R. C. S., Surgeon to St. Peter's Hospital for Stone, etc. New York: William Wood & Co., 1881. Pp. xxiii–393. [Wood's Library of Standard Medical Authors.] .

WE have so lately had occasion to commend the English edition of this work that at present we need only congratulate the subscribers to "Wood's Library" on its addition to the list of works embraced under that title.

Transactions of the Obstetrical Society of London. Vol. XXII, for the year 1880. London: Longmans, Green & Co., 1881. Pp. lxii–315–78.

IN addition to the other contents, most of which has been referred to and much of it epitomized in our Reports on Obstetrics and Gynæcology, this volume contains catalogues of the society's museum and library, also a most useful index to the catalogue of the library. As a whole, the volume presents the usual creditable appearance, and shows evidence of careful preparation.

BOOKS AND PAMPHLETS RECEIVED.—Lectures on Electricity (Dynamic and Franklinic) in its Relations to Medicine and Surgery. By A. D. Rockwell, A. M., M. D., Electro-therapeutist to the New York State Woman's Hospital, etc. New York: William Wood & Co., 1881. Pp. 122. ═══ Insanity and its Treatment. Lectures on the Treatment of Insanity and Kindred Nervous Diseases. By Samuel Worcester, M. D., Salem, Mass., Lecturer on Insanity, Nervous Diseases, and Dermatology at Boston University School of Medicine, etc. New York and Philadelphia: Boericke & Tafel, 1882. Pp. 462. [Price, $3·50.] ═══ The Diagnosis and Treatment of the Diseases of the Eye. By Henry W. Williams, A. M., M. D., Professor of Ophthalmology in Harvard University, etc. Boston: Houghton, Mifflin & Co., 1881. Pp. xii–464. [Price, $4.] ═══ A

Manual of Ophthalmic Practice. By Henry S. Schell, M. D., Surgeon to Wills Eye Hospital, etc. With 53 illustrations. Philadelphia: D. G. Brinton, 1881. Pp. 263. ===== Frozen Sections of a Child. By Thomas Dwight, M. D., Instructor in Topographical Anatomy and Histology in Harvard University, etc. Fifteen drawings from nature by H. P. Quincy, M. D. New York: William Wood & Co., 1881. Pp. v–66. ===== The Prevention of Stricture and of Prostatic Obstruction. By Reginald Harrison, F. R. C. S., Surgeon to the Royal Infirmary, etc. London: J. & A. Churchill, 1881. Pp. 28. ===== Suppression of Urine: Clinical Descriptions and Analysis of Symptoms. By E. P. Fowler, M. D. Ninety-three clinical cases, with illustrations, tables, and diagrams. New York: William Wood & Co., 1881. Pp. 86. ===== The Nurse and Mother. A Manual for the Guidance of Monthly Nurses and Mothers, etc. By Walter Coles, M. D., Consulting Physician to St. Ann's Lying-in Asylum, St. Louis, etc. St. Louis: J. H. Chambers & Co., 1881. Pp. 153. ===== The Physician's Clinical Record for Hospital or Private Practice; with Memoranda for Examining Patients, Temperature Charts, etc. Philadelphia: D. G. Brinton, 1881. ===== A System of Surgery, Theoretical and Practical, in Treatises by Various Authors. Edited by T. Holmes, M. A. Cantab., Surgeon and Lecturer on Surgery at St. George's Hospital, etc. First American, from second English, edition, thoroughly revised and much enlarged. By John H. Packard, A. M., M. D., Surgeon to the Episcopal and St. Joseph's Hospitals, Philadelphia, assisted by a large corps of the most eminent American surgeons. In three volumes, with many illustrations. Vol. II, Diseases of Organs of Special Sense, Diseases of Circulatory System, Diseases of Digestive Tract, Diseases of Genito-urinary Organs. Philadelphia: Henry C. Lea's Son & Co., 1881. Pp. xxvii–27 to 1063, inclusive. ===== A Manual of Midwifery. By Alfred Meadows, M. D. Lond., F. R. C. P., Late Examiner in Midwifery at the Royal College of Physicians, etc., assisted by Albert J. Venn, M. D., M. R. C. P., Obstetric Physician to the Metropolitan Free Hospital, etc. Fourth edition, revised and enlarged, with 137 wood engravings. New York: G. P. Putnam's Sons, 1882. Pp. xxiv–498. [Price, $2·50.] ===== A Treatise on the Diseases of Infancy and Childhood. By J. Lewis Smith, M. D., Clinical Professor of Diseases of Children in Bellevue Hospital Medical College, etc. Fifth edition, thoroughly revised, with illustrations. Philadelphia: Henry C. Lea's Son & Co., 1881. Pp. 836. ===== A Practical Manual of the Diseases of Children, with a Formulary. By Edward Ellis, M. D., late Senior Surgeon to the Victoria Hospital for Sick Children, etc. Fourth edition, revised and enlarged. Philadelphia: Presley Blakiston, 1881. Pp. xviii–523. [Price, $3·50.] ===== Lectures on the Pathological Anatomy of the Nervous System. Diseases of the Spinal Cord. By J. M. Charcot, Professor to the Faculty of Medicine of Paris, etc. Translated from the reports by Dr. E. Brissaud, in the "Progrès Médical," by Cornelius G. Comegys, M. D., Lecturer on Clinical Medicine to the Cincinnati Hospital, etc. With illustrations. Cincinnati: Peter G. Thomson, 1881. Pp. xi–165. [Price, $1·75.] ===== Aids to Diagnosis. Part iii.—What to Ask. By J. Milner Fothergill, M. D., M. R. C. P. New York: G. P. Putnam's Sons, 1881. Pp. 66. [Students' Aids Series.] ===== On Spermatorrhœa: its Pathology, Results, and Complications. By J. L. Milton, Senior Surgeon to St. John's Hospital for Diseases of the Skin. Eleventh edition. London: Henry Renshaw, 1881. Pp. viii–182. ===== Azione di Alcune Sostanze Medicamentose sulla Eccitabilità del Cervello, e Contributo alla Terapia dell' Epilessia. Memoria del Prof. Pietro Albertoni. [Reprint.]

==== Proceedings of the Academy of Natural Sciences of Philadelphia. Part ii, June and July, 1881. ==== Proceedings of the Royal Society, No. 206 to No. 218, inclusive. ==== Transactions of the Medical and Chirurgical Faculty of the State of Maryland, at its eighty-third annual session, 1881. ==== Transactions of the Michigan State Medical Society for the year 1881. ==== London Water Supply, etc. By William Crookes, F. R. S., William Odling, M. B., F. R. S., etc., and C. Meynott Tidy, M. B., F. C. S., etc. No. ix. ==== Meteorological Observations taken at the Hôtel Belvedere, Davos-Platz, Switzerland, from 16th August, 1879, till 31st March, 1880. Also, a map of Davos-Platz and its vicinity. [From Dr. Parker, Vevey.] ==== The Physician's Daily Pocket Record, etc. By S. W. Butler, M. D. Sixteenth year. Edited by D. G. Brinton, M. D. Philadelphia: Office of the Medical and Surgical Reporter, 1882. ==== Walsh's Physicians' Handy Ledger. [From E. R. Pelton, New York.] ==== Walsh's Physicians' Combined Call-Book and Tablet. Sixth edition. ==== In addition we have received a number of pamphlets, the separate acknowledgment of which is prevented by lack of space.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

(Continued from December number.)

Dr. Garrigues said that Dr. Drysdale must have overlooked that part of his paper which referred to different kinds of coagulability, quick and slow, in different cysts. In some cases of fibro-cyst of the uterus coagulation took place quickly, and the whole amount of fluid was changed into almost a solid mass, which process was characteristic of this kind of cysts; while in the case of ovarian cysts, if coagulation was found at all, it did not take place for many hours, sometimes not for days, or until some other fluid was added, such as blood or serum. He had no doubt that in a majority of cases Dr. Drysdale could recognize an ovarian cyst by an examination of its contents. In the opinion that this could be done they entirely agreed; but he did not believe that we could distinguish between cysts of the broad ligament and those of the ovary by such an examination. He had seen the small body attached to a large one, which Dr. Noeggerath had drawn upon the blackboard, and which he considered the so-called ovarian cell. A few of them might have such an origin, but the great majority were nuclei of epithelial cells. It was not proper to call the large bodies Gluge's cells, for, according to Gluge's own description, his "compound inflammation globules" were an agglomeration of nuclei of red blood corpuscles [*sic*], while it was easy to convince one's self that Bennett's large corpuscles were nothing but epithelial cells from the inside of the cyst. The transformation could be seen while they were yet adherent to the wall. He had admitted that there were dangers attending tapping, but they should be limited to the puncturing of blood-vessels, and this accident must occur very rarely, even though they should be in the path of the needle. By introducing this slowly they might be pushed aside and not wounded. As to the danger of puncturing the intestine which might be lying in front of the trocar, he thought we should be able to detect that danger by percussion, and avoid it. It had been said here that but few cases called for tapping. He had found records of a good many cases in which neglect of exploratory tapping led to serious results. There was, for instance, a case on record in which Spiegelberg, a great advocate of exploratory puncture, having neglected to use it, began an operation for the removal of a supposed ovarian tumor which turned out to be an hydatid cyst of the kidney. The patient died. This was a case in which a microscopical examination of the fluid would probably have revealed the true nature of the cyst. It had been said that tapping rendered the chances of success in subsequent ovariotomies less. The opposite seemed to be true, according to the statistics, in Mr. Spencer Wells's practice. In the cases in which tapping was not done at all the results were a fraction better than in cases in which tapping was done twice; but the result of one or three tappings was even better than in cases in which tapping was not done at all. He agreed with Dr. Noeggerath that death from tapping, aside from hæmorrhage as a cause, must have arisen from sepsis. He agreed with Dr. Drysdale that it was unsafe to withdraw only a part of the fluid, and particularly to manipulate afterward. If this must be done, it should be done before withdrawing the cannula. A few months ago he saw a case in the Woman's Hospital in which, after the withdrawal of only a part of the fluid, the remainder poured out into the abdomen. The fact that some patients got well after tapping, without recourse to ovariotomy, was a strong argument in its favor when we considered the slight dangers attending it if done with proper precautions. Some had spoken of percussion, etc., as means of making a diagnosis, in place of examining the fluid microscopically. He emphasized the fact in his paper that every one should avail himself of every means for making a correct diagnosis before performing an operation of such importance. He did not believe, with Dr. Drysdale, that there was any morphological element which was characteristic of an ovarian cyst. He believed the special one to which Dr. Drysdale called attention was without any value at all. He thought, with Dr. Noeggerath, that cysts of the ovary, cysts of the broad ligament, and parovarian cysts could not be distinguished from one another by an examination of their fluid contents, and he had stated it in the paper. The thick fluid of dermoid cysts could be withdrawn through a fine trocar as soon as the syringe was applied.

NOTES ON CASES OF PELVIC EFFUSION RESULTING IN ABSCESS.—Dr. GEORGE H. LYMAN, of Boston, read a paper in which he stated that, from 1875 to 1880, inclusive, one hundred and forty-six cases of pelvic effusion had been treated by himself and his colleagues in the Boston City Hospital. The patients were admitted at all stages of the disease, and forty-one of the cases either were at the time the patients were admitted, or soon afterward became, cases of pelvic abscess. It was not the design of his paper to enter upon any elaborate discussion of the pathology of the disease. Numerous designations had been employed to express the various conditions resulting from inflammation of the serous and cellular tissues in which the pelvic organs were embedded. The term perimetric inflammation, proposed by Dr. Barnes, seemed practically as good as any, with certain restrictions. He would say in general terms that the causes of pelvic abscess should be sought for in those diseased actions which led to its first stage; in those pathological conditions which induced peritonitis, cellulitis, hæmatocele, etc. In many of these cases not only had primary cellulitis, peritonitis, or hæmatocele evidently not been recognized, but on the patients' admission to the hospital there was well-developed fluctuation. No doubt there were cases well calculated to deceive the general practitioner, but in a large majority a proper vaginal examination and the antecedent history should together lead to a correct diagnosis. The great frequency of pelvic effusion was not sufficiently insisted upon by gynæcological writers. A comparatively large proportion of such cases terminated by absorption, and the physician, not recognizing the local lesion, comforted himself in the delusion of successful treatment of cystitis or dysentery. It should be recognized that neither pain, nor abdominal enlargement, nor menstrual irregularities were necessary factors of pelvic peritonitis, and that in the absence of one or all of them a distinct suppurative process might be going on, to be revealed only after irreparable damage. Encysted purulent deposits might remain for long periods quiescent and unsuspected, but, as a rule, pus in the tissues always sought an outlet, and in such cases a neglect of the surgical rule, to render such outlet a safe one, with the knife, with the aspirator, or otherwise, would be likely to result in an unsafe one through the peritonæum, the groin, the thigh, the bladder, the rectum, one or more of them, or by chance the patient might be fortunate enough to get a vaginal opening. As to the history of pelvic effusions, the large majority of cases were not of puerperal origin. Interference with the menstrual function by fatigue, chills from cold bathing or otherwise, excessive coition, the extension of gonorrhœal secretions through the Fallopian tubes, operations upon the cervix, intra-uterine applications, the sound, the pessary, were all more or less fruitful causes of peritoneal or cellular effusion. There was no doubt that cancerous affections might be the cause, although he had met with but one such case, and that a doubtful one. Effusions were sometimes mistaken for something else. But, the presence of the effusion being satisfactorily recognized, we might expect to find one of several conditions, all of which were to be considered in view of subsequent treatment. The mere presence of effusion was not of necessity an excuse for operative interference. A large majority of the peritoneal and cellular forms were unquestionably absorbed. The discovery of a tumor caused by effusion did not, unless there were inflammatory symptoms threatening suppuration, necessarily demand local surgical interference; but, if fluctuation were superadded, the question at once presented itself, Should an effort be made to evacuate it? The answer depended upon the constitutional symptoms, and upon the differentiation which we might be able to make between pus, serum, blood, etc. If the contents were serous, he believed delay preferable to haste, and by the use of iron internally, and vesication and iodine externally, we might avoid the risks incident to the most careful puncture. The same was true with regard to hæmorrhagic effusions. The danger of exciting suppuration in a large hæmatocele all would admit. Should it be found that the fluctuation were due to pus, to "make haste slowly" would mean an extension of the abscess, increasing exhaustion, and a larger mortality. Doubt in diagnosis could often be dissipated by the use of an aspirator, which, if thought best, might be as fine as an hypodermic needle. It was attended with very slight danger in view of the possible beneficial results. He never had had occasion to regret inserting the trocar too early, but had had occasion to regret inserting it too late. His object in bringing the paper before the society was to direct attention more particularly to the following considerations: 1. The necessity of a more general recognition by the profession at large of the fact that pelvic effusions were of extremely frequent occurrence, that very often they were not recognized through error in diagnosis, and especially from the fact that, when arising from pelvic peritonitis, they were commonly absorbed, leaving only a focus of induration, to develop future mischief under given exciting causes. 2. The extreme importance of recognizing in these effusions the earliest advent of suppuration, and, in doubtful cases, the propriety of a resort to the aspirator, as being the least of two evils. 3. Suppuration being recognized, the importance of giving early exit to the pus *per vaginam*, if by any means this could be safely accomplished, before the danger was incurred of its extension to the surrounding tissues, with long-continued and exhausting discharges, too often resulting fatally. The author referred to the bibliography of the subject.

Dr. Albert H. Smith, of Philadelphia, said the point which the author insisted upon—the importance of early opening *per vaginam*—was a very important one. He thought that in no case had he seen bad results follow an attempt at opening through the vagina to find pus in cases of suppurating pelvic effusion. There was little risk if proper antiseptic precautions were adopted, but he thought the danger arising from allowing these pelvic effusions to go on to suppuration, and the suppuration to spread and form large deposits of pus, was very great. If a vaginal opening were secured, we should relieve the patient with one half the risk. He recollected that in one case, in which he made an opening through the posterior cul-de-sac, the patient was almost moribund. There was an enormous collection of pus and a retro-uterine abscess extending up above the pubes nearly to the umbilicus. There was a temperature of 106° F., pulse over 150, very rapid respirations, and the patient was apparently rapidly sinking. He drew off two pints of pus with the aspirator, and the patient recovered. He would repeat that he had never seen bad results either from opening into a pus cavity *per vaginam*, or attempting to find pus when proper precautions were taken; but he had seen most unfortunate results follow allowing pus to seek an opening for itself, perhaps into the rectum, perhaps into the bladder, or into the peritoneal cavity. He recalled a case of the kind in Philadelphia which had come to his knowledge a few days before. The patient was the wife of a physician. He said she had had a pelvic abscess for eighteen months, which had opened into the rectum, and had filled and refilled. The abscess would appear to be empty, and she would become convalescent. But suddenly she would be taken down again, evidently from refilling of the pus cavity. Now, if in such cases an opening were made into the vagina, through which he had always found satisfactory drainage, this patient might go on to recovery. There was one question which he would like to ask Dr. Lyman, and that was concerning the propriety of using the sound in differentiating between retroversions and pelvic effusions. He did not think he was an alarmist, he did not think he overrated the dangers of the use of the sound, and yet he must say that he felt great hesitation in using the sound in making such differential diagnosis in cases in which he suspected pelvic effusion or pelvic inflammation of any kind. He recalled a case in which the patient had been suffering a considerable length of time with general induration in the vault of the vagina of a very obscure character. The exact relation of the uterus to the mass could not be accurately ascertained. A sound was passed into the uterine cavity with the greatest care, but, having a vague, indefinite feeling that something was wrong, and fearing to progress with the examination, the sound was withdrawn; yet that patient went into collapse that afternoon and died the following morning, and it was found that the sound had penetrated a portion of the uterus where there was inflammatory softening, and had gone through the fundus into the peritoneal cavity. He had always before that felt the necessity of care in such cases, but since then he had felt it still more strongly.

Dr. **Ellwood Wilson**, of Philadelphia, said he never attempted to explore with the knife until after the abscess was well established.

Dr. **Barker** said his views on this whole subject had been so often expressed before, and had appeared in print in so many various discussions, that he had little new to add. He was particularly struck with the fullness of the paper to which he had listened. He hardly knew how the author could have said more on this subject in so short a space of time, and it was especially valuable as a study based upon the clinical records of a hospital in which a very large number of cases were treated. It was a subject which had been discussed a good deal, but no discussion which he had heard had taken it up in so broad, comprehensive, and full a way. He would add that there was no other class of cases which had come under his personal observation in which a correct diagnosis had so frequently failed to be made. He did not mean by this to indulge in wholesale censure of the profession; he meant simply to say that every year he saw a large number of cases in consultation in which the existence of pelvic cellulitis, pelvic peritonitis, and even pelvic abscess had been regarded as something else. With regard to the propriety of early operative interference to let out the effusion, whether it were simply serous or purulent, his rules had long been established from experience, and he had not yet seen reason to change them. He had seen the entire condition of the patient changed in a very short time by simply introducing the aspirator and letting out only a drachm or two of serum, shown in the decline of the frequency of the pulse, in the reduction of the temperature, and still more in the great relief from suffering. He knew of no other class of cases in which so little physical change apparently produced so great a change for the better in the patient. Therefore he was an advocate for early operative procedure. The worst class of cases he had seen—and he had seen some very bad ones—were those in which the condition had not been recognized until there was a state of things in the pelvic cavity in some instances jeopardizing life, and in many cases leaving the patient permanently invalided.

Dr. **Paul F. Mundé**, of New York, said he was glad to hear Dr. Barker express such positive views on this subject. Last winter he, Dr. Mundé, read a paper before the Academy of Medicine on the subject of early aspiration of pelvic abscesses, chiefly obscure pelvic abscesses. He reported eight cases in which he aspirated simply because he suspected the existence of pus, not being positive of it. His probable diagnosis of pus was based upon the fact that there had been pelvic exudation for several months. In some of the cases he removed a drachm or two of pus, and in none did he remove more than an ounce, but in each instance it produced beneficial results. In one case he did not find any pus, but still the exudation rapidly disappeared after the puncture. Since then he had seen a case with Dr. Mary Putnam Jacobi, in which no positive evidence of the existence of pus could be found until after introducing the needle several times, when some pus was removed; the abscess soon afterward opened into the bladder, and a large quantity of pus was discharged through this channel, after which the patient made a rapid recovery. He thought we should not only aspirate early after discovering the existence of pus, but in case of doubt, its existence being suspected, we should aspirate, and if it were found, remove it. Occasionally there might be multiple abscesses, and the needle might have to be inserted several times at one sitting before all the pus was removed.

Dr. **Van De Warker** referred to the fact that the natural opening which the abscess made into the rectum or bladder was like that of an abscess on the surface—round, and not calculated to let out all the contents of the cavity. He had had a case in which the contents of the sac found exit through the bladder, and it refilled at intervals of six weeks or two months during eighteen months, the patient all that time suffering from chills and high temperature, and growing weaker. Finally it was necessary to cut down just above the crest of the ilium on the right side and thoroughly evacuate the sac before a cure could be effected. He had no doubt that if this had not been done the patient would have died of blood poisoning. He therefore thought that, although it was important to remove the contents of the sac early, it was equally important in some instances to open it freely late. In the case referred to, the abscess had been aspirated several times, anticipating its rupture into the bladder, but it accomplished no good Nothing but a free opening led to a cure.

Dr. **Emmet** considered himself a pioneer in attaching so much importance to the existence of pelvic inflammation in connection with uterine diseases, and to-day he probably held more advanced views than any other man in the profession with regard to the importance of this condition. He really thought it was about the most important subject which could be brought up for discussion. He was impressed with the fact that pelvic inflammation in some form accompanied almost every uterine lesion we were called upon to treat, directly or indirectly complicating it, and that there were differences which the profession as a whole did not recognize the importance of. We had yet to learn to distinguish several different pathological changes which to-day we regarded as a whole. We used the term cellulitis to express the condition, when in fact we probably had four or five conditions differing from one another, and our future advancement would consist in being able to recognize, to separate these conditions, and then to treat them intelligently. We might have a true cellulitis, inflammation of the connective tissue of the pelvis below the dip of the peritonæum. A very different condition of things would exist where the connective tissue between the peritonæum forming the folds of the broad ligament became involved, for in that instance the peritonæum would also become inflamed. He could not conceive how inflammation here could exist in the thin layer of connective tissue without involving the peritonæum. We had also phlebitis, as well as inflammation of the lymphatics, and probably other conditions, all of which to-day were classed under the one name "cellulitis" for the want of a better name. The condition which we saw sometimes in childbirth, in which the whole pelvic contents seemed to have been fused together and become solidified, this state of things disappearing within a few days and leaving no trace of the inflammation behind, must be very different from that in like cases which, under other circumstances, would exist for years, and could not be cured by any means until menstruation ceased. These were the extreme conditions, and different grades existed between them. He would repeat what he had said: that he considered this the most important field for future advancement in studying the pathology of uterine diseases and their complications, and that this advancement would consist in our being able to separate these different conditions referred to, and to treat them intelligently. His experience taught him, he thought, that all flexures, versions, displacements, erosions, etc., depended upon some inflammation somewhere in the connective tissue of the pelvis, and that the uterus was simply the victim. Judging from his experience in consultation, he thought that a large majority of the profession did not appreciate the importance of slight changes or degrees of pelvic inflammation. There might be a little thickening at the side of the uterus in the broad ligament that would defeat every effort to reduce the size of the uterus until we could raise that organ in the pelvis a quarter or half an inch, and take the strain off the shortened broad ligament; and very few of the profession appreciated the importance of doing this. Again, there might be some inflammation in both broad ligaments, not enough, however, to attract much attention; and what would be the effect? As the broad ligaments ran forward, and the fundus of the uterus was a little above their attachment, prolapsus of the uterus would result from shortening. Yet the first idea that came into the mind of the general practitioner was that, as there was a prolapsus, he must correct the condition with a pessary. Nothing was more futile in the practice, or attended with more danger. As these ligaments shortened, the uterus was drawn down, and it depended upon the position of the fundus whether the displacement would be one of retroversion or one of anteversion. The uterus must descend into the pelvis, as a result of the shortening of the ligaments; and, if we attempted to raise the uterus in the pelvis before correcting the cellulitis, we should bring on an acute attack: and this was one of the most common mistakes made in practice. Similar illustrations might be given indefinitely respecting his views, which, however, were already known, and he had wished simply to call attention to the subject to get information from others. With regard to pelvic abscess, its diagnosis and treatment, as considered more particularly in the paper, it had been his good fortune to have but few to treat. If he had been so unfortunate as to set up pelvic inflammation, having his patients immediately under his own care in hospital practice, he had generally been able to cut it short before it had gone on to the formation of an abscess. He had had several cases in which serous effusion had taken place. When he first read Dr. Brickell's paper, he thought it of great importance, and that we had made a great advance; but, unfortunately, in his experience, in three or four cases in which he punctured in search of serum, he had had occasion to regret it exceedingly. They were cases in which hardening remained, and which resisted all treatment. He had thrust the trocar into the pelvis in cases in which he hoped to get fluid, but, as he had said, he had always had occasion to regret it. It was his first impulse on preparing a new edition of his book to draw the pen through the whole of Dr. Brickell's contribution; but Dr. Mundé had read a paper on that subject a year ago in which he confirmed Dr. Brickell's observations, and now we had heard Dr. Lyman's paper to-day. He must confess that a few years ago he would have introduced the trocar anywhere in the pelvis without hesitation, but as he grew older he became more conservative, and now he did not like to put the exploring needle three or four inches into the pelvis blindly, and take the chances of being able to find fluid. He wanted to know that there was something there before introducing the needle.

Dr. LYMAN said he agreed with Dr. Emmet that there was no subject of more importance in the treatment of pelvic disorders than attention to cellulitis. The differentiation between the various conditions which occurred in consequence of pelvic effusion was a thing that we were very much in the dark about, as everybody knew. The object of his paper was not so much to treat of differentiation as to call attention to these interesting cases which, almost incidentally as it were, had come under his attention. He thought it too valuable a series of cases to be thrown aside. The principal point in the paper was not the management of pelvic effusions, or of conditions resulting from them, but to differentiate between a mass which we could all recognize as the result of pelvic effusion and suppuration. He really believed that when we had any reasonable ground for supposing that there was pus in the pelvic cavity we should search for it. Why? Because we all knew that if it were left there it would burrow; it was not going to remain encysted, sacculated, notwithstanding the statements of Duncan and others. It would burrow, and after a while the whole of the cellular tissue of the pelvis might become involved, and become agglutinated together, making a mass of infiltrated tissue with here and there sacculated pus, and making the woman wretched. She could never be well as long as a drop of pus remained. The object of the paper was to urge the necessity for seeking for pus in such cases. Of course, some risk attended the introduction of the hypodermic needle, but the risk was vastly less than that from allowing half a teaspoonful of pus to remain. He had not always found pus in cases in which he had passed the aspirator; he had introduced it frequently, and never had had occasion to regret it. Although he had not always reached pus, curiously enough, in all cases in which he had aspirated, the patient was benefited by it.

Second Day, Thursday, September 22d.

GENITAL RENOVATION, PARTICULARLY BY KOLPOSTENOTOMY AND KOLPOECPETASIS IN URINARY AND FECAL FISTULES.—Dr. NATHAN BOZEMAN, of New York, read a paper of which he stated that *genital renovation, or genital anakainosis, as opposed to genital kleisis, particularly by kolpostenotomy and kolpoecpetasis, in urinary and fecal fistules, without interference with the functions of the organs involved*, was the title in full. The term *genital kleisis* was used in a generic sense, and was intended to include all that family of operations employed to occlude the vulvo-vaginal and uterine tract at some point, and in some form or other, without regard to its functions. He believed the term was first used by Dr. Anatole Le Double, of Paris, in 1876. Dr. Bozeman used the term *genital anakainosis* as an opposing term for that of genital kleisis, and it was intended to include all of those operations on the vulvo-vaginal and uterine tract without interference with its functions. The word was formed from the Greek (ἀνὰ and *καινίζω*), and meant to renew, restore. The author would be partly responsible also for the introduction of another term, *ephelkosis*, from the Greek (ἐπὶ and ἕλκω), meaning to draw, pull, drag, which was intended to express the act of dragging down the uterus to make it subservient to the closure of large defects in the vesico-vaginal and recto-vaginal septa; and the operation itself was called *hystero-ephelkosis*. This operation was first attempted by Professor Horner, of Philadelphia, in 1838, in a case of vesico-utero-vaginal fistule, but it proved a failure. He would introduce still another Greek word, *stellosis* (στέλλω), meaning to contract, fold up; and, associated with the Greek word for bladder, we had *cysto-stellosis*, contraction of the bladder. Kolpostenotomy was the surgical procedure of cutting into a cicatricially narrowed, distorted vagina, and, while kolpoecpetasis might be employed in uncomplicated narrowing of the vagina, in complicated narrowing or obliteration from sloughing, cicatricial bands, etc., kolpostenotomy had to be employed for gradually stretching open the organ, and maintaining its natural functions independently of those of neighboring organs. Kolpoecpetasis, besides restoring the vagina to its normal condition, fulfilled an important indication with respect to the lost function of the bladder, in that it stopped up the fistulous opening, thus forcing the bladder to take on to a certain extent its function of retaining the urine, and afterward dilating *pari passu* with the dilatation going on in the vagina. Notwithstanding the fistulous communication between the bladder and vagina, the urine was made mechanically to act as a dilator, and the operation might be called *cysto-ecpetasis*, stretching open the bladder, the companion word of kolpoecpetasis. There might be objections to the use of so many new words, but, as there were expressive words applied to special operations on the male genito-urinary organs, there should be similar ones respecting the female genito-urinary organs. His object in calling attention to the subject of genital kleisis was threefold: first, critically to examine this system of practice, together with some of the published statistics, particularly those of the late Professor Simon, its most earnest advocate, with a view of learning more definitely its limits, its application, and its dangers, whether immediate or remote; secondly, to show how genital renovation had been brought to its present high state of perfection, with the view of directing attention more pointedly to the range of its usefulness, its application in practice, and the comparatively little danger attending its employment; thirdly, to present a comparative analysis of the results, as far as the statistics at hand of the two systems would permit. The statistics used in support of genital anakainosis were those of his own practice, amounting to 120 cases. Dr. Bozeman then considered the subject of genital kleisis. In 1832, when Vidal first proposed to obliterate the vulva for the relief of incontinence of urine in vesico-vaginal fistules thought otherwise incurable, he believed that no fistule situated in the *bas fond* of the bladder, and attended with loss of tissue, had ever been cured. Up to 1845 no case had been cured by his method. At this date Auguste Bérard, an earnest follower of Vidal, made trial of the method, with almost complete success, the woman being able to retain and pass naturally a considerable quantity of urine, but on the seventeenth day she was seized with peritonitis, and on the thirty-eighth day died. The autopsy showed pleuro-pneumonia, in addition to slight peritonitis. After a hot discussion over the case in the Academy of Medicine of Paris, Bérard was censured for having caused the death of his patient, and the operative procedure was condemned as irrational and undeserving of confidence. The method then fell into general disfavor, but not long after Jobert revived it, and extended its application to the obliteration of the mouth of the uterus for the relief of incontinence of urine resulting from vesico-uterine fistules, and to the shutting up of the cervix uteri in the bladder for the same purpose in vesico-utero-vaginal fistules. After eight or ten years the principle found an advocate in Professor Gustav Simon, who extended it to the urethral portion of the vagina, in the form of transverse obliteration. In 1856 and '59 Dr. Bozeman employed it in this country in two cases, and in 1858 Dr. Sims also performed the same operation in two cases. The credit was due to Professor Simon of having made the first and most important application of the principle. The operation was performed in a case of vesico-utero-vaginal fistule complicated by a kolpostenosis just below, the latter lesion opposing access to the former for treatment. The sides of the constricted portion were pared, and the front and posterior sides were united by double rows of silk sutures. After the fourth trial the opening was reduced to a point so small that a large part of the urine could be retained and passed in the natural way. From this success Professor Simon was led to conclude that the method was a great improvement on that of Vidal, and it soon became an established operation, not only with himself, but with other German surgeons. In 1867 Simon reported twenty-eight successful closures of the vagina, called the method kolpokeisils, and divided it into two forms, the transverse and the oblique. The indications calling for it were eight: first, great loss of substance, making it impossible to bring the sides of the fistule together; second, inaccessibility of the fistule; third, loss of the infra-vaginal cervix uteri and danger to the peritonæum; fourth, hæmorrhage into the bladder, if severe, after operation; fifth, incarceration of the cervix uteri in the bladder; sixth, atresia of the vagina above the fistule; seventh, atresia of the urethra with one fistule above and one below; eighth, uretero-vaginal and uretero-uterine fistules. The author then gave M. Le Double's classification. He then gave Simon's statistics, and stated that, with this discrimination in the character of the 92 cures claimed out of 105 cases by Simon, his figures, as rearranged, stood as follows: 61 cases were cured by uniting the borders of the fistule, or direct operations with preservation of functions; 31 cases were treated and ameliorated by kolpokleisis, or indirect operations with sacrifice of functions; in 5 cases, fistules were closed except small openings; 2 patients incurable, dismissed; 6 patients died. Simon's death rate was very small as compared with that of other German surgeons. Dr. Bozeman would venture to say that in four fifths of the cases in which kolpokleisis had been performed, kolpostenosis in some form or another had existed, and it was his experience that, when this complication existed, there was a tendency to alkalinity of the urine in a large proportion of them, and under such circumstances phlegmonous inflammation was exceedingly liable to follow any operation of genital kleisis where there was much exposure of raw surfaces to the action of this kind of urine, shut up as it was in the vagina; and there was consequently greater danger of implication of the pelvic peritonæum. As to the objections and dangers of kolpokleisis, it was a careful study of the remote causes of death after kolpokleisis that first led the author, in 1868, to oppose the operation, and additional facts gathered since then abundantly proved that his objections were well taken. He then gave the history of some cases which had first suggested to him the remote causes of death. As far back as 1859, after performing his first kolpokleisis, he saw a case of large recto-vaginal fistule, with a thick, hard, and unyielding kolpostenosis, complicated by pregnancy at six months. The vaginal tract was reduced to the size of the index finger, and it was only by preparatory treatment—kolpostenotomy and kolpoecpetasis—for one month that he was able to save the patient from further injuries, and to preserve the life of her child. After the preparatory treatment he brought on labor at the seventh month. By a few incisions when the child's head had descended to the point of stenosis, and the use of the forceps, he effected a safe delivery to the mother, and saved the child. Pregnancy was no less a remote cause of danger to life in this case than nephritis or pyo-nephritis would have been one of the remote causes of death after kolpokleisis. He referred to a case of Wernher's in which, after autopsy, a calculus of the size of a pigeon's egg was found in the vagina just above the cicatricial diaphragm. From such data he had been led to the conviction that the operation was exceedingly dangerous as regarded its remote consequences, and was altogether too indiscriminately employed. In 1874 he visited Europe to make further investigations into the subject. One of the first cases which he saw on arriving at Heidelberg, where he had been invited by Professor Simon, was one of pregnancy after an almost completed kolpokleisis about half an inch behind the meatus urinarius. Mr. Spencer Wells happened to be present. Through the little filiform tract which remained open the spermatozoa entered. There also existed a urethro-vesico-vaginal fistule. At about the fourth or fifth month of pregnancy the woman came for advice. Mr. Wells thought it best to allow pregnancy to go on to full term, and, when the child's head put the cicatricial diaphragm on the stretch, to lay the parts open by incision, and thus allow the completion of labor. He had had a similar case himself after one of his kolpokleidic operations which turned out well. Dr. Bozeman regarded this opinion of Mr. Wells's as correct as far as it related to his own case, knowing that the vagina above the kolpokleidic closure was free from stenosis as a complication of the coexisting fistule: but he knew that in the case before them the kolpostenosis was the complication of the fistule which had in the first place led to the uncompleted kolpokleisis, and to wait for the child's head to pass this stenosed point and put the kolpokleidic diaphragm below on the stretch would be to expose the woman to further troubles, and perhaps to the loss of life. He therefore recommended the undoing at once of the kolpokleidic closure, and to overcome the kolpostenosis, and thus prepare the vagina for the incoming head at full-term or premature birth. Simon, however, concurred in the opinion of Mr. Wells; the woman was sent home, with instructions to her physician, but whether or not they were properly carried out he could not say; at any rate, the woman sustained such terrible injuries in addition to those she already had that there was left no hope for relief. The cause of the trouble and accident was no doubt the preexisting kolpostenosis, and the only thing to have been done under the circumstances was the re-establishment of the vaginal tract by kolpostenotomy and kolpoecpetasis as a preparatory step for labor. Several other cases illustrative of the remote and immediate dangers of the operation were given.

(To be continued.)

NEW YORK OBSTETRICAL SOCIETY.

A STATED meeting was held October 4, 1881, Dr. JAMES B. HUNTER, President, in the chair.

CONGENITAL MOLAR TOOTH.—Dr. A. JACOBI presented a small specimen, interesting because of its rare occurrence. Many of those present had doubtless seen congenital teeth. He himself had probably seen as many as twenty, but every one of them, except the one which he now presented, had occupied the place of an incisor, in most instances in the lower jaw. He said they had *occupied the place* of an incisor, simply because he had never seen a congenital tooth fully developed; they were always fragments, without much root. In his work on "Dentition and its Derangements," published nineteen years ago, he had collected a large number of cases of congenital teeth. A number of these cases dated as far back as the younger Pliny. The case of Louis XIV and others were usually quoted. The Wednesday before the meeting a babe a few weeks old was brought to his clinic, which had two congenital molar teeth. He removed one of them, which he now showed, and left the other to be removed subsequently before the class. The lower part of the tooth, the root, was almost entirely absent. The tooth was very white, and the enamel was very thin;

below were four little points, corresponding to the roots. The specimen must be very rare indeed; he would ask if any of the gentlemen present had ever seen a congenital molar tooth. ═══ The PRESIDENT said he had seen but one congenital tooth, and that was a lower incisor. ═══ Dr. JACOBI said he had seen comparatively a large number of congenital teeth, more than he ever expected to see at the time he wrote the book referred to, but he had never before seen a single congenital molar tooth, nor had he found a record of any, although he had looked over the literature of the subject extending back two thousand years. It was true that Pliny had reported a case of a full set of congenital teeth in a Roman consul, but all such statements should be looked upon as exaggerations. He did not believe that a full set of congenital teeth had ever occurred. ═══ Dr. J. F. JENKINS said that, when a boy, he knew a man who was reputed to have had a full set of teeth at birth, and all molars, but he had never examined his mouth. ═══ The PRESIDENT said that in the case he referred to the child was born before the seventh month. ═══ Dr. JACOBI said that was not unusually the case. He had collected several instances in his book in which congenital teeth were found in fœtuses born prematurely. In one case of that kind it was stated that there were eruptions on the skin. It was probably a case of hereditary syphilis. In many of the cases which he had seen, the child was poorly developed, sometimes rachitical, and he thought the presence of congenital teeth was a sign of imperfect development or of the tendency to rickets. ═══ Dr. COLIN MACKENZIE said that in one case of congenital teeth which he had seen the fontanelles closed early, at about the second or third month. In another case there was closure of the fontanelles and a rachitic condition of the lower extremities at the fourth month, with death of the child. He would ask if it was usual in such cases to have early closure of them by the so-called Wormian bodies. ═══ Dr. JACOBI said that was an interesting question. One would naturally infer that closure of the fontanelles would occur early in cases of congenital teeth, for he had found that where the fontanelles closed early, say at the seventh or eighth month, the teeth appeared early, say at the third or fourth month; and when the fontanelles closed late the teeth made their appearance late. However, although he might infer that such would be the case, he had never seen premature ossification of the bones of the cranium in cases of congenital teeth. When there was precocious ossification of the fontanelles and cranial sutures, the upper central incisors usually made their appearance before the lower.

TRACHEOTOMY IN DIPHTHERIA; RECOVERY.—Dr. W. T. LUSK said that in the early part of last spring he was summoned to see a child, a patient of Dr. O'Neil's, who was said to have croup. He was unable to visit the patient until after the lapse of an hour. He then did so, taking the instruments necessary for the performance of tracheotomy with him. When he entered the house, Dr. O'Neil said to him, "It is too late; the child is gone." He went in and found a child eight years old lying on its mother's lap, completely cyanosed, with pupils widely dilated, in an unconscious state, and breathing at long intervals. It was evident that only one thing remained to be done under the circumstances, and that was tracheotomy. Dr. O'Neil expressed great doubt as to the operation affording any hope, adding that he had witnessed a number of operations, but that in every one the patient had died, and that, so far as he was concerned, he was opposed to torturing the child at this time. Dr. Lusk replied that when the children died it was not from the operation, but from extension of the disease; and that this child, being eight or nine years old, stood a chance of recovering. On questioning the doctor, he learned that the child had had diphtheria a week, but that the symptoms of croup and asphyxia had come on very suddenly that morning. It was decided to leave the question of tracheotomy to the mother, who had expressed herself very strongly against it before Dr. Lusk's arrival. On being assured by Dr. Lusk that he had known recovery to follow the operation, she consented to it, however. He took the child and went into another room, and as rapidly as possible opened the trachea and inserted the tube. The child was so cyanosed, and the intervals between the respirations were so long, that he feared it would die during the operation; but as soon as the tube was introduced the child gave a strong expiration, and membranes, mucus, and blood spurted out full two feet from the opening. In a few moments the color began to return to the face, and in three or four minutes the child put its hand up to its throat, showing that sensation was beginning to return, and opened its eyes; the pupils contracted again, and in ten minutes the cyanosis had disappeared and the child looked perfectly natural. The tube was allowed to remain in the throat five days; it was then removed, and the child made a perfect recovery. He narrated this case to give encouragement to many in this city who had a great repugnance to this operation. He had long since made up his mind not to allow a child to die from asphyxia in a case of diphtheritic croup. He asked Dr. Jacobi if the conditions in this case were not rendered favorable by the age of the child and by the asphyxia coming on suddenly, not slowly. ═══ Dr. JACOBI said the child was manifestly dying, and of suffocation, and that was indication enough for tracheotomy. He was very glad that, while ten or twenty years ago he was one of only a very few in New York who favored the operation, to-day there were many dozens and scores of physicians who were just as willing to perform it when a child was suffocating as he had been then and was still. He was very glad to have heard of this case, for it must have made a great impression upon the family physician, upon the mother, and upon the friends of the family, and it would certainly do a great deal to popularize the operation. If only one of a number of operations was successful, it justified our resorting to it in these cases.

ABSCESS OF THE FALLOPIAN TUBE; SEPTICÆMIA AND DEATH.—Dr. H. F. WALKER related the case of a colored woman, twenty-eight years of age, a widow, who entered his service in Bellevue Hospital a few months ago, suffering with intense fever. She stated that four or five days before her admission she had a chill, which was followed by fever, and at the same time there was a sanguinolent discharge from the vagina. When she entered the hospital this discharge was of a very offensive character; the temperature was 103° F., and rose to 104°. The uterus was enlarged to about the size of the third month of pregnancy, although the patient denied the possibility of pregnancy. There was no fixation of the organ whatever. Dr. Walker thought she was suffering from some septic cause, and she was treated accordingly, Kibbie's cot being used to reduce the temperature. Before placing the patient on the cot he introduced a tupelo tent, dilated the uterine canal, not sufficiently to introduce the finger, but sufficiently to introduce a curette, and very gently inserted this instrument, but discovered nothing, only proving the depth of the canal to be three and a half inches. There was no indication of pregnancy or of anything decomposing within the cavity of the uterus. The patient went through the regular course of septicæmia, and finally died. The temperature was diminished by the cot, but there was developed a certain amount of bronchitis, which, however, disappeared before death occurred; but the symptom which seemed most to diminish her strength was persistent nausea and vomiting, and diarrhœa, such as took place in cases of septicæmia. At the post-mortem, an abscess was found in the right Fallopian tube which contained about two ounces of extremely fetid pus. It was probable that the sanguinolent and offensive discharge from the vagina had come from this abscess, and that absorption of some of the matter had given rise to septicæmia, of which the patient died. This view was corroborated by the fact that there were small abscesses in the kidneys and liver. The point of interest in the case was its similarity to a case of septicæmia arising from an abortion. The rise and fall in temperature were such as were usually observed in septicæmia. ═══ Dr. Jacobi said it would be interesting to know whether it was an old abscess, whether there was a great deal of thickening of the walls of the abscess, or whether it was of recent formation. ═══ Dr. Walker said the Fallopian tube was not much thickened; there was no indication that the abscess was of a chronic nature. The patient had complained of a moderate amount of tenderness on either side of the uterus. ═══ Dr. H. D. Nicoll asked if it might not have been a case of tubal pregnancy. ═══ Dr. Walker said there was no alteration in the lining membrane of the uterus, or other indication in the uterus of pregnancy. The increase of the uterus in size was caused by small mural fibroids. The patient denied emphatically any exposure to pregnancy.

Drainage after Ovariotomy.—Dr. C. S. Ward related a case of interest with reference to drainage after ovariotomy. On the 9th of July last he, with Dr. Walker, removed an ovarian tumor from a woman thirty-eight years of age. The tumor had existed about six months, and the woman looked about as large as if she were at the eighth month of pregnancy. It was attached to the uterus. After making the incision, the tumor was found to have a few adhesions to the intestine and to the omentum, but none of any importance. The fluid was of good character, opalescent, and not very thick. The tumor was found adherent to the left border and the fundus of the uterus. It was removed after passing a double ligature through the attachment to the fundus and tying it. That portion of the tumor which was attached to the border of the uterus was torn off, and the peritoneal investment of the uterus was brought together and stitched. The patient did perfectly well until the beginning of the fourth day. The temperature had been about 100° F., and the pulse from 76 to 90. During the latter part of the third day the temperature began to rise, and at the beginning of the fourth day it was 104°—a sign of septic poisoning, as there was no evidence of peritonitis in pain or other symptoms. He determined to remove the sutures and find the collection of fluid which was giving rise to the trouble. He had not used a drainage tube at first, as there was no oozing of fluid from any source. He now removed three of the four sutures, and even at that early date found that firm peritoneal union had taken place. He passed his index finger down behind the uterus, and there found a puddle of decomposing fluid, about an ounce and a half in quantity. He put in a Thomas's glass drainage tube and syringed out the cavity. The temperature then fell within two hours to 99°; the pulse, which was about 186, dropped to about 100, and all the symptoms improved. The patient was put on Kibbie's cot, and douched every hour until the temperature remained nearly normal. She did well until the eleventh day, but at that time, in the absence of the nurse, she walked to the mirror, looked at the abdominal wound, then walked out into the hall. Dr. Ward saw her in the evening, and found her greatly prostrated, so that she seemed likely to die of exhaustion. Stimulants were administered freely. Two days afterward she had a chill, which was due to the formation of a mural abscess. This discharged through the abdominal incision by the side of the drainage tube, which was removed one week after its introduction. The mural abscess continued to discharge up to last week, the eighty-third day after the operation. The two ligatures around the pedicle were discharged. On the 14th of August Dr. Ward went out of town, and, as the patient was an intelligent woman, he instructed her to wash out the abdominal sinus with carbolized water two or three times a day, by passing a catheter into the sinus, which could be done to a depth of four and a half inches. The patient was now at her usual avocation, that of a fitter in a large dress-making establishment in the city. Dr. Ward felt very sure that, had he not taken out the sutures and washed out the cavity, the patient would have died, probably within forty-eight hours. He recognized the ushering in of a class of symptoms which, unless attended to at once, had only one end, namely, death. In answer to a question by Dr. Jacobi, Dr. Ward said that perhaps an ounce or an ounce and a half of water could be injected. On account of the close contact of the intestines about the drainage tube, the amount which could be so injected was less than one might suppose.

KIBBIE'S COT.—Dr. LUSK said he would like to speak a word in behalf of Kibbie's cot. He had used it a good deal in the Emergency Hospital, sometimes with great success, sometimes with failure, but he had a case last spring which had led him to adopt the cot in private practice. The woman was a hospital patient, who had a very high fever, the temperature rising at times to 107° F. He had the patient removed to a special ward, and cold water poured on five or six times each day for about a week. Erysipelas then spread from the genitals down both thighs, and up the abdomen as far as the navel. It was as unpromising a case of puerperal fever as he had ever seen. The patient entirely recovered. The water poured on was of a temperature of 80° or 90°, and the temperature of the patient was kept at about 100°. She was given great quantities of stimulants. Dr. Lusk was determined to use the cot in private practice, notwithstanding the prejudice against the use of water in fevers on the part of the laity. ═══ The PRESIDENT said he had used the cot in his private practice as well as in hospital practice. He had used it successfully in cases of typhoid fever. He had tried sponging, but failed to reduce the temperature more than one or two degrees; then putting the patient on Kibbie's cot and pouring on water of a temperature of 75° or 80°, and gradually reducing it, perhaps to as low as 60°, he was enabled to bring the temperature of the patient down to 99°, and keep it there, without producing shock or other unfavorable symptoms; on the contrary, the sensation produced was pleasant to the patient. He was quite sure the same result could not be produced by any amount of sponging. ═══ Dr. LUSK said he had seen a good many cases of shock produced by Kibbie's cot in pyæmic cases. ═══ The PRESIDENT thought the fault consisted in beginning with water at too low a temperature. We might begin with water at 100° or 95°, which certainly would not produce shock, and gradually diminish the temperature as the case required, pouring the water gently over the body, not over the hands and feet. He had found no other method of reducing the temperature so effectual. ═══ Dr. CLEMENT CLEVELAND said he had used the cot in one case of typhoid fever, and one of scarlet fever, and the effect was delightful. ═══ The PRESIDENT remarked that he had used it in cases of peritonitis in the Woman's Hospital with excellent results. In some cases, he believed, the patients would otherwise have died. ═══ Dr. WARD said he had probably used Kibbie's cot as often as anybody present, and he thought the chief trouble with most persons in its use lay in the arrangement of the cot. It was very desirable to have the patient comfortable, to douche thoroughly that part of the body which we wished to douche, and at the same time keep other parts dry. In ovariotomy, for instance, it was desired to douche the abdomen only, while the rest of the body was kept dry. This could be accomplished by placing the rubber cloths in the usual way upon the upper and lower thirds of the cot. Upon this rubber cloth place folded sheets, turning the lower end of the upper one backward, and likewise the upper end of the lower one, so that the water could not run in either direction from the central open space; thus the upper and lower parts of the body would be kept dry. It was sometimes necessary to place a small pillow under the thorax, covering it with a rubber cloth, the more completely to guard against a reflux of water in that direction. And then it was an easy matter to raise the body and put a dry sheet under it, as it was sometimes desirable to do. ═══ Dr. LUSK remarked that the patient whose case he had related was the first one with extensive erysipelas connected with puerperal fever that he had seen recover. ═══ Dr. ROBERT WATTS said he had seen a great many cases of typhoid fever treated with the cot in Roosevelt Hospital, and it was now the general plan adopted there for the treatment of typhoid fever with persistent high temperature. They had modified the cot by putting a bed, properly arranged for the application of the douche, over a bath-tub, and there was no trouble then about drainage. It required a separate tub for each patient, and was suitable only for hospital use. ═══ Dr. LUSK asked what Dr. Jacobi's experience had been with the cold bath in scarlet fever. His reason for asking the question was, that, although we often witnessed favorable results, yet in a great many cases, on taking the child out of a bath of 80°, the extremities were cold, there was blueness of the surface, and the pulse was feeble, so that we were obliged to discontinue its use. He had not seen any statements with regard to the possible ill results from the employment of moderately cold baths. He had heard only the favorable side of the subject. ═══ Dr. JACOBI said he could only repeat the warnings which he had given in many public and printed lectures concerning cold bathing. He had seen just as much harm as good done by it. The last time he had alluded to it publicly was in a lecture on typhoid fever in children, published in the "Medical Record" some years ago. There he insisted upon the discontinuance of the cold bath in every case in which the extremities did not readily get warm. It was contraindicated not only because it was disagreeable to the patient, but because the object in view was not accomplished. The temperature of the surface of the body might be quite low, but on introducing the thermometer into the rectum it would be found quite high, much higher than in the axilla. In the case of his own child, when the temperature went up to 105° or 106° it had slight convulsions; he set it in cold water a short time, and the temperature went down; he repeated the cold bath after a few hours, when the temperature had risen, but the general symptoms did not get better, although the temperature had, as before, apparently gone down. He then introduced a thermometer into the rectum, and found the temperature 106°. The skin, however, was cool, and looked a little dark and mottled. He then plunged the child into hot water, and the temperature in the rectum went down, simply in consequence of drawing the circulation to the surface. It was his rule not to repeat the bath a second time if after the first time there were coolness of the extremities and increased frequency of the pulse. It should not be repeated, at any rate, for a day or two. In cases in which the circulation was weak, he took it for granted that the feet would not get warm after the cold bath, and did not resort to it at all. In such a case he would use the pack or the fever cot. The pack was very easily applied in the case of children. It should be applied only to about three fifths of the body. A few days ago he reduced the temperature from 105° to below 100°, within half an hour, in a child that had typhoid fever. In that case the nurse applied the pack, repeating it every two minutes until it was applied about fifteen times. It was important not to disturb children too much in taking them from the bed to the pack or bath, as they sometimes fainted, and might even die in a fainting spell. He had sometimes used ice when he could not conveniently apply the cold bath. ═══ Dr. W. M. **Chamberlain** asked Dr. Watts if it had been their experience in Roosevelt Hospital that typhoid-fever patients treated with Kibbie's cot showed a greater disposition to intestinal hæmorrhage than when not so treated. Such, he thought, had been the experience in a hospital at Basle, when Liebermeister made the observations upon which his original papers advocating the cold-water treatment of fever were based. ═══ Dr. **Watts** replied in the negative. He could recall but one case in which intestinal hæmorrhage occurred after the use of the cot. That patient recovered. ═══ Dr. **Jacobi** said he used cold water in cases of typhoid fever whenever the temperature went above 103°, and he had seen a great many cases so treated, and he could not recall a single case for a number of years back in which intestinal hæmorrhage had occurred, but he had been very careful in the use of cold. Some patients would bear it well the first week, when they would not bear it at all the second week on account of debility.

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Reports on the Progress of Medicine.

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No. XII.

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Obstetrics.

1. **Reynolds**, J. P.—Safeguards in private obstetrics. "Boston Med. and Surg. Jour.," Oct. 27, 1881.
2. **Pflüger**, E.—Einige Beobachtungen zur Frage über die das Geschlecht bestimmenden Ursachen. "Arch. f. d. ges. Physiol.," xxvi, 5–6, 1881.

3. **Wilson**, H. P. C.—Applications to eroded cervix during pregnancy. [Baltimore Acad. of Med.] "Maryland Med. Jour.," Oct. 15, 1881.
4. **Monod.**—Hypertrophie des seins. [Soc. de Chir., Paris.] "Progr. Méd.," Oct. 8, 1881.
5. **Cullen**, P.—Is quinine an abortifacient? [Khundwa Dispensary.] "Indian Med. Gaz.," Oct., 1881.
6. V. **Holst**, L.—Heisse Douche bei Abort. "St. Petersb. med. Woch.," Oct. 17 (29), 1881.
7. **Küstner**, O.—Deciduaretention—Deciduom—Adenoma uteri. "Arch. f. Gynäk.," xviii, 2, 1881.
8. **Rey**, M.—De l'accouchement chez les primipares agées. "Gaz. Méd. de Paris," Oct. 15, 1881.
9. **Budin**, P.—On a peculiar arrangement of the ova in twin pregnancies as observed in two cases. "Am. Jour. of Obstet.," Oct., 1881.
10. **Burton**, R. B.—A complicated twin delivery. *Ibid.*
11. **Budin.**—Orifice microscopique du col de l'utérus, phénomènes d'oblitération au moment de l'accouchement chez une femme primipare. "Gaz. des Hôp.," Oct. 29, 1881.
12. **Hosmer**, A.—A peculiar condition of the cervix uteri which is found in certain cases of dystocia. "Boston. Med. and Surg. Jour.," Oct. 20, 1881.
13. **Hamilton**, G.—On the management of tedious labors. "Edinb. Med. Jour.," Nov., 1881.
14. **De Camp**, W. H.—How to regulate uterine contractions during labor. "Western Med. Reporter," Oct., 1881.
15. **Kempf**, E. J.—Ergot in labor. [Letter.] "Louisville Med. News," Oct. 22, 1881.
16. **Kuhn.**—Ein Fall von Tetanus puerperalis. [Gynäk. Sektion der Naturforscherversamml. in Salzburg.] "Centralbl. f. Gynäk.," Oct. 15, 1881. [Beilage.]
17. **Quinan**, J. R.—A historical study of the invention and publication of the English midwifery forceps. "Maryland Med. Jour.," Nov. 1, 1881.
18. **Jackson**, A. R.—Is craniotomy ever justifiable? "Chicago Med. Jour. and Exam.," Oct., 1881.
19. V. **Weckbecker-Sternefeld**, H.—Beitrag zur Frage über die Behandlung der Steisslagen mit der Schlinge. "Arch. f. Gynäk.," xviii, 2, 1881.
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21. **Van den Bosch**, H.—Présentation de l'épaule droite avec dégagement du bras et procidence du cordon ombilical. Version impossible. Décollation par le procédé du professeur Wasseige. "Jour. de Méd., de Chir. et de Pharm.," Aug., 1881.
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24. **Jakins**, W. V.—Parturition with contracted pelvis. "Austral. Med. Jour.," Sept., 1881.
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28. **Harris**, R. P.—Does the removal of a fœtus by abdominal section, after a rupture of the uterus, constitute a "Cæsarean operation"? etc. "Am. Jour. of Obstet.," Oct., 1881.
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40. Napier, A. D. L.—Clinical observations on puerperal temperatures. "Edinb. Med. Jour.," Oct., Nov., 1881.
41. Prideaux, E.—A case of cerebral embolism fourteen days after confinement. "Lancet," Oct. 15, 1881.
42. Oppenheimer, L. S.—Reply to Dr. Hiram Corson's article on puerperal mammary inflammation. "Western Med. Reporter," Oct., 1881.
43. Cheatham, W.—Ophthalmia neonatorum. "Louisville Med. News," Oct. 22, 1881.
44. Grossmann, K.—On ophthalmia neonatorum and its prevention. "Brit. Med. Jour.," Oct. 29, 1881.
45. Breus, C.—Zur Therapie der Hernia funiculi umbilicalis. "Wien. med. Woch.," Oct. 8, 1881.
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2. Dr. Wilson reported at a recent meeting of the Baltimore Academy of Medicine a case showing the advantage of treating *erosions of the cervix uteri during pregnancy.* A lady suffered from hæmorrhages due to erosion of the cervix and its canal during pregnancy. In a former gestation they had been so profuse and exhausting that he found it necessary to bring on labor at the seventh month. In the present instance the cervix was soft and patulous, and bled when touched. The treatment consisted in applying chromic acid and Monsel's solution, alternating with iodine, to the cervical canal, but not above the os internum. Such applications were made once a week for five or six weeks, at the end of which time the erosion had healed, the bleeding had ceased, and the patient was advancing safely to term.

5. Dr. Cullen thinks that the notion of *the abortifacient action of quinine* has been made too much of, and has been allowed to stand in the way of the drug being used in cases that demanded it. When severe fever attacks a pregnant woman labor is likely come on, he remarks, irrespective of treatment, and he has never hesitated to give quinine, combining it with an opiate unless there is constipation, in which case he associates it with sulphate of magnesium and sulphuric acid. He gives an illustrative case, and avers that he could adduce many more to the same purpose.

12. *Tonic spasm of the os uteri internum during labor* is again brought forward by Dr. Hosmer as deserving of recognition among the acknowledged causes of dystocia. He refers to his former description of the condition, under the name of "ante-partum hourglass contraction," and summarizes the cases that have since been published, remarking that the different observers, in entire ignorance and independence of each other, have made their several

descriptions in words and phrases so nearly identical that there can be no doubt that they have all been dealing with the same thing. Simple elongation of the cervix, even though excessive, while it may disable the uterus by perverting its force, and render spontaneous expulsion improbable, does not, in connection with artificial delivery, give rise to what can properly be called dystocia. Tonic spasm of the internal os may be developed so early as to imprison the whole fœtus in the cavity of the uterine body, and if there are twins its production may be so postponed as to interfere only with the birth of the last child. Its existence can not necessarily be referred either to pelvic deformity, to extreme elongation of the cervix, or to the occupation of the cervical cavity by any portion of the unborn child. It shows a marked tendency to recur in the successive labors of those who have once or even twice survived the danger to which it exposed them, and patients in whom it occurs for the first time are not necessarily primiparæ. It should not be confounded with "Bandl's dystocia" [meaning, no doubt, the extreme distention of the cervix described by Bandl as the precursor of rupture of the uterus, but which in itself has nothing to do with the dystocia].

14. Dr. De Camp boldly declares that no one need do harm by using *ergot as an oxytocic*, provided he gives it in doses of no more than ten or fifteen minims of the fluid extract every fifteen minutes. This, he asserts, will invariably produce the desired frequency of pains, but not always the desired force. The latter effect can not be secured with ergot without danger of exciting tonic contraction, but quinine in ten-grain doses will secure it, and should be used under such circumstances. [The author does not state how often or how many times the quinine should be given. The precision with which these two drugs act in his practice excites our admiration, but we can not believe that others will find them equally docile.]

18. Dr. Jackson upholds *the justifiability of craniotomy* in cases in which it seems evident that any other mode of delivery *per vias naturales* is impossible, and in which at the same time there is a reasonable prospect of saving the mother's life by resorting to it—except (1) in cases of cancer of the uterus or vagina, in which the mother's fate is only a question of time, and the child therefore comes to have the greater claim to life; and (2) in cases in which labor is complicated with the presence of pelvic tumors, incapable of being removed or emptied of their contents, of such size that dangerous pressure must be made upon them, even after the fetal head has been reduced in size. [Dr. Jackson's paper is a reply to one by Dr. R. J. Kinkead, read before the Obstetrical Society of Dublin, and published in the "Obstetrical Journal of Great Britain and Ireland" for March, 1880. It seems to us that the increasing confidence that is now justly coming to be felt in the Cæsarean operation and its modifications should make one slow to push the argument against the Irish writer, especially in view of the fact that his article was published in a journal that circulated chiefly in a country where craniotomy is acknowledged to be too much in vogue.]

19. Dr. v. Weckbecker-Sternefeld figures and describes an instrument for applying *the fillet in breech presentations*, which means of making traction he advocates in such cases as require interference. The instrument is a flattened tube, somewhat curved on the flat at one end, and attached by the other to a handle, through which latter the canal of the tube is extended. Through this channel slides a mandrel of watch-spring, after the manner of Bellocq's "sound." The curved end of the tube is carried over the child's groin, and the mandrel is then pushed along until its free end has made the circuit of the groin, with a silk or lead fillet attached to it. The latter having been grasped, the instrument is withdrawn. Details are given of twelve cases illustrating the advantages of the fillet. In five of them the lead fillet was used. In one case the thigh was fractured, but in general the traction did no special damage, and all the mothers did well, as did also the children, except one that died of syphilis.

20. This is a brief account of a peculiar case of *Cæsarean hysterectomy*—peculiar in that the indication for the operation was epithelioma of the cervix. The entire uterus was removed, as in Freund's operation. The pregnancy had advanced to between five and six months. The operator, Mr. Spencer Wells, employed strict antiseptic precautions. After the uterus was brought out through the wound, the upper half of the latter was closed temporarily with silk sutures, and the intestines were guarded with sponges. In separating the bladder from the uterus a small rent was made into the uterine cavity, and the fœtus was extracted, but it only made three or four respiratory efforts. As the vaginal wall was cut around close to the uterus, all bleeding points were secured with pressure-forceps, and phenolized silk ligatures were afterward applied. The vaginal wound was closed with silk sutures. Very little blood was lost. Six days after the operation the woman was doing well. [The account speaks of her comparative freedom from after-pains, which freedom, if our ideas of after-pains are at all well founded, we can readily credit.]

31. Dr. Bakewell relates a case of *inversion of the uterus* in which he succeeded in reducing the organ by first indenting one cornu, the patient being anæsthetized. After its reduction, however, the uterus required active measures to make it contract, and a perchloride-of-iron tampon was inserted into the cervix, from which there was still some bleeding. For several hours the patient failed to rally; no pulse could be felt at the wrists, and the brachial pulse was very feeble; the respiration was of the Cheyne-Stokes character; and death seemed imminent. Faradization was applied "along the course of the pneumogastric nerves and through the body by the hands." Reaction took place in a few minutes. [In whatever way the faradization acted, we can scarcely doubt that the author had the good fortune to fail in carrying out his apparent intention of passing the current through the pneumogastrics.]

36. At a recent meeting of the Dublin Obstetrical Society Dr. Harley related a case of *central laceration of the perinæum*, in which the occurrence was attributed to a peculiar conformation of the pubic arch, which was described as "very flat and low." ===== In the discussion Dr. More Madden expressed himself in favor of the old practice of supporting the perinæum. ===== Dr. Harley stated that, so far as he could find in literature, the late Dr. White, of Buffalo, was the only person who had written on and recommended bilateral incision as a means of preventing laceration [!].

37. At the recent meeting of naturalists in Salzburg Dr. Kaltenbach related a case of *extra-uterine pregnancy* in which the sac was developed between the layers of the broad ligament after the Fallopian tube, in which the ovum first found a lodgment, had become ruptured. This was made out before operative interference was attempted; it was also ascertained that the placenta was implanted high up, and that there were no pulsating vessels to be felt in that portion of the vagina that covered the sac. Elytrotomy therefore seemed the most promising operation, and it was performed in the sixth month. The fœtus being dead, craniotomy was performed to facilitate its removal without enlarging the incision. After its extraction there was sharp hæmorrhage, partly from the lips of the wound and partly from within the sac. This was controlled by quilting the sac and the vaginal wall together with sutures. No attempt was made to remove the placenta until the fourth day, septic phenomena having shown themselves on the third. For four days afterward things went well, when suddenly, during the administration of an antiseptic injection into the sac, collapse came on, with signs of pulmonary embolism, and the patient died. At the autopsy embolism of the pulmonary artery was found, also an effusion of blood into the peritonæum from rupture of the cyst, the latter being due, it was thought, to the pressure exerted in artificial respiration during the collapse that preceded death. The embolism was probably occasioned by the injection, either by some movement on the part of the patient, or by some alteration in the shape or volume of the sac, consequent upon it.

40. Dr. Napier's paper embraces such generalizations as he has been able to deduce from careful observations of *puerperal temperatures* in all his cases for the past seven years. In brief, his conclusions are as follows: (1.) The temperature in certain individuals may be as low as 97° F. or as high as 99·5° for a week or more without a single bad symptom. The average for the first three days is from 98·5° to 99°. The normal range is 2·5°. (2.) No temperature over 99° (unless accounted for by individual nervous susceptibility) is normal after four days. The healthy patient may have an occasional night temperature of 100° or 101° within the first four or five days, but a continuing, or even a morning or day record like this requires an explanation. (3.) Slight causes, e. g., constipation, retention of urine, etc., give a rise to 99°–100·5°, sometimes more. (4.) Retention of clots or secundines, 99°-101°, or upward; 103° at times. (5.) Weid has a sudden late temperature of 103·5°, with rapid pulse; the heat falls quickly with the development of the local affection. Other cases of mastitis are mildly febrile for several days. (6.) Endometritis and perimetritis show 103·5°, with slow pulse. (7.) Peritonitis has a single rigor and a sudden early temperature of 104° or upward; the pulse is wiry. General peritonitis, if severe, 105·5°–106°. (8.) Oöphoritis, parametritis, etc., have a heat of 101°–102·5°; the pulse is weak and irritable. Recurrent rigors mark fresh deposits of pus, and are followed by temporary increased heat, 104·5°. (9.) Pyæmia and uterine phlebitis average 103°, perhaps more. Cases in which the veins are rapidly affected are soon 104·5° to 106°, and end speedily. Pyæmia is frequently late in development, seven to ten days. (10.) Septicæmia varies from 102·5°–107°. The heat is never less, at least for some period of the twenty-four hours, than 102·5°, if the case is properly established. The temperature may vary, but, after the norm has been reached, less than in pyæmia. There is no security from remission till the night temperature is below 100°. Recovery is rare after a temperature of 106°. (11.) Mental emotion may show 104° or even 106°, and sometimes in addition there may be symptoms resembling those of metro-peritonitis. These temperatures do not persist, but fall to the normal in less than forty-eight hours. (12.) If the temperature does not rise within ten days from delivery, there is little risk of grave disease unless from gross imprudence in exposure to cold or from zymotic infection. (13.) Although the temperature is moderately low, 100°–101°, so long as the pulse continues 120 or more we are not safe from relapse. No anxiety need be felt so long as the temperature is kept under 102°. However fast the pulse, if the temperature continues low, the prognosis is favorable, unless the temperature is low from collapse. If the temperature is persistent at 102°, or frequently recurs to this point, there must be an abnormal organic condition. (14.) The temperature should be observed night and morning for the first seven days, and daily for three to seven days after, especially if the delivery has been instrumental or if zymotic or epidemic disease prevails. When an abnormal temperature is discovered, it should be reduced to the normal as early as possible by one agent or another. It is of the highest moment to bring it down to 100°, and keep it there or lower.

45. Dr. Breus depicts the unsatisfactory results of the ordinary methods of treating *funicular hernia*, and describes a radical operation which he has performed with success, although the case was unpromising, peritonitis having already set in and the reduction requiring a good deal of force. He thinks that in the great majority of cases the following method should be followed: Reduction, if possible without opening the sac; closure of the hernial opening by means of ligation through the skin, a provisional clamp having been first applied; removal of the emptied sac; cauterization of the peritoneal surface and that of the incision with Paquelin's cautery; antiseptic dressing (antiseptic precautions having been rigidly adhered to throughout). The operation should be done as soon as possible after the child's birth, in order to anticipate peritonitis.

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4. In this article Dr. Hart deals with the clinical features, etc., of *the genu-pectoral posture*, reiterating his belief that in practice it is seldom of much service, and that the distention of the vagina with air that follows retraction of the perinæum in this posture is the result rather than the cause of whatever change takes place in the position of the viscera. [Dr. Hart's views in regard to this matter were briefly summarized in a notice of his and Dr. Simpson's joint work, "The Relations of the Abdominal and Pelvic Organs in the Female," that appeared in the September number of this journal, p. 280. The purport of the article now before us is much the same, but it seems to have been less carefully written, and contains a remarkable statement, which we can not but look upon as a slip of the pen, viz., that the normal direction of the vagina is in a line "parallel to the axis of the brim."]

10. Dr. Pawlick describes a *new method of exploring the ureters in women*, by which anything of the nature of a preliminary operation, even dilatation of the urethra, is avoided, for it is simply into the vagina, not into the bladder, that the guiding finger is inserted. He has discovered, he says, that there are two furrows on the anterior wall of the vagina, which, starting from a common point situated a short distance behind the bulge of the urethra, diverge at an obtuse angle and pass backward and outward. Near the cervex uteri they are connected by a transverse furrow, thus forming a triangle that corresponds with the trigone. The direction of each lateral furrow is coincident with that of the ureter of the same side, and the intersection of the lateral with the transverse furrow is nearly at the situation of the mouth of the ureter. Hence, after introducing the sound into the bladder (the patient being in the knee-chest posture, with the perinæum retracted, so as to expose the parts to view), its point need only be guided slightly with the finger in the vagina. The instrument, it is said, is easily made to enter the ureter in this way, and thus in removing the uterus it is easy to avoid injury of the ureter.

13. At a meeting of the Société de

Thérapeutique M. Dujardin-Beaumetz spoke highly of the local use of *iodoform in vaginismus*, especially in that variety that results from erosions of the vaginal orifice, which should not be confounded with "essential" vaginismus, a true neurosis. He thought iodoform the best of all local applications, and that it was best applied by spraying the ostium vaginæ with the ethereal solution (from one to five-per-cent., accordingly as it was borne, the five-per-cent. solution being highly irritating). ═══ M. Tanret suggested the addition of a little oil, to make the layer of iodoform more adherent. ═══ The general drift of the remainder of the discussion was that vaginismus was very prone to relapse, and that it often baffled all efforts at cure.

24. At a meeting of the Obstetrical Society of London, Dr. Herman read a paper on *the relation of anteflexion of the uterus to dysmenorrhœa.* The evidence required to prove that anteflexion caused dysmenorrhœa, by leading to narrowing or temporary occlusion of the canal at the point of flexure, was of two kinds, anatomical and clinical. As to the former, it had to be shown that the canal was bent at an angle and blocked up by a spur of tissue projecting inward. In four specimens in London museums the curve was quite gradual; there was no angle, no dilatation of the uterine cavity. Moreover, he had searched in vain for any case of retention of the menstrual blood and dilatation of the uterine cavity for which no other cause than an anteflexion existed, or of a pelvic hæmatocele dependent upon stenosis of the uterine canal from anteflexion. As to the clinical evidence, it fell into four groups: (1) that drawn from the patient's sensations; (2) that drawn from the "afferent hindrance" to the passage of the uterine sound (both considered by the author to be inconclusive); (3) that drawn from the frequent association of anteflexion with dysmenorrhœa. Before concluding from this association that the anteflexion was the cause of the dysmenorrhœa, we must know how often anteflexion occurred without functional disorder of the uterus. Statistics quoted from various other observers showed that, out of 431 women, there was anteflexion in 185, and the uterus was straight and in the axis of the pelvis in only 153. In 102 women without functional disorder he had found the uterus markedly anteflexed in 49. Of the 53 in whom the uterus was slightly or not at all bent, in 38 there was little or no pain at the menstrual period, and in 15 severe pain; but, of the 49 in whom there was pronounced anteflexion, in 33 there was little or no pain at the menstrual period, and in 16 severe pain. So slight a difference, he thought, was practically none. Dysmenorrhœa with anteflexion was often curable by means that did not straighten the uterus, such as rest, vaginal pessaries, depletion, incision, or dilatation of the cervix. The benefit of intra-uterine stems might be due to their effect in dilating the canal or in stimulating the uterus, or to the preparatory treatment; there was no evidence that they succeeded when the first-mentioned kind of treatment had failed. The author thus summed up his paper: 1. There is no anatomical evidence that anteflexion causes any hindrance to the escape of menstrual fluid. 2. There is reason to think that well-marked anteflexion is present in nearly half of all women who have not borne children. 3. Therefore it is to be expected that anteflexion would frequently coincide. 4. Dysmenorrhœa is, practically, as common when the uterus is straight as when it is anteflexed. 5. Painless menstruation is, practically, as common when the uterus is anteflexed as when it is not. 6. When dysmenorrhœa and flexion go together, the severity of the pain bears no relation to the degree of the bending. 7. Dysmenorrhœa associated with anteflexion is frequently cured without straightening the uterus. 8. There is no evidence that straightening the uterus invariably or even frequently removes dysmenorrhœa which is associated with anteflexion, and in which other methods of cure have been ineffectual. 9. These facts show that the relation between anteflexion and dysmenorrhœa is not that of cause and effect, but merely that of coincidence. ═══ Dr. Gervis thought we should recognize a class of cases of antecurvature, as distinct from sharp flexion, and that Dr. Herman's cases of anteflexion without symptoms would mostly belong to that class. ═══ Dr. Galabin remarked that Dr. Herman had made no distinction between the symptoms of congestive and those of obstructive dysmenorrhœa, and that, if it were true, as held by Schultze, that permanent straightness of the nulliparous uterus was itself a proof of induration from chronic metritis, Dr. Herman's figures would be quite consistent with obstructive dysmenorrhœa being commoner with anteflexion, for congestive dysmenorrhœa might be commoner with the straight uterus. It was contrary to all physiological analogy to expect permanent distention of the uterus from partial obstruction of the canal, for in stricture of the urethra there was not a distended bladder, but a contracted bladder with hypertrophied walls. It was contrary to his own experience that marked anteflexion existed in nearly fifty per cent. of nulliparous women, but, as Dr. Herman examined only by the bimanual method, his statistics perhaps applied rather to uteri which could be brought into anteflexion by pressure from above. ═══ The President (Dr. J. Matthews Duncan) agreed with Dr. Herman, and thought that his method of studying the question had brought him nearer to a demonstration than had those of observers who held the opposite view. It was a strong point that no such spur or dilatation of the uterus as was figured in books could be found. If there was only a small or very contracted passage, there was still room enough for blood to pass freely, not only the few ounces in the few days of a menstrual period, but so much as to let the woman bleed to death in a short time. ═══ Dr. Herman, in closing the discussion, said he did not deny the existence of obstructive dysmenorrhœa, but only that the obstruction was due to flexion. He did not think that in his cases anteflexion had been produced by the method of examination.

27. Dr. Ahlfeld reports that he has lately been treating *stenosis of the cervix uteri* by dilatation with bulbous hard-rubber plugs. He has them made of different sizes and curvatures, numbered according to the diameter of the bulb in millimetres. The bulb is the largest part, and the theory of their action is that, one being inserted a millimetre or more larger in diameter than the constricted portion of the canal (generally the os internum), it acts as a foreign body and is expelled gradually, thus producing dilatation. Some little force is used in inserting the plug, but an anæsthetic is not required, nor need the patient abstain from her ordinary occupation. The process of expulsion is usually finished within twenty-four hours, and is not attended with severe pain, as the plugs, being tubular, allow of the ready escape of fluids. On the escape of one, another is inserted of larger diameter, and the process is continued until a diameter of six or eight millimetres is reached. He has used them in as many as a hundred cases, and has met with no accident, but slight loss of blood often occurs, and the menstrual flow is hastened. The plug is dipped in a hot five-per-cent. solution of carbolic acid before it is inserted.

28, 29. In his communication to the Académie de Médecine, M. Guéniot advocated *Maisonneuve's serre-nœud for the removal of uterine polypi*, as being easier of application than the écraseur. Cutting operations, he thought, should not be practiced, for hæmorrhage, although not common, was liable to prove troublesome. ═══ At the succeeding meeting M. Labbé defended the écraseur, but stated that he preferred the galvano-caustic loop to all other means. ═══ M. Verneuil considered the écraseur the best instrument for the purpose, especially Desprès's modification, which it was possible to apply with exactness. ═══ In the case of small polypi M. Gosselin preferred the scissors, as being less likely to give rise to septicæmia. ═══ M. Tillaux preferred the écraseur for pediculated growths.

31. Dr. Mermann records a fatal case of *rupture of an inflamed Fallopian tube from traction on the uterus.* The depression of the uterus was very moderate, being only that resulting from countertraction with a Muzeux's forceps while introducing Hegar's dilating cylinders. Repeated examinations had failed to disclose any abnormality of the adnexa, but, post mortem, both tubes were found larger than one's finger, and containing a serous fluid. The right tube was attached posteriorly by old adhesions. The author remarks that salpingitis is not always so easy of diagnosis as has been supposed.

32. Dr. Herman thinks that *prolapse of the ovary* should be more studied in simple cases rather than in those complicated with other abnormal conditions. Mere tenderness of the organ does not prove that it is inflamed. The special symptoms are pain in defecation and in coitus. The former is to be overcome by securing soft passages, preferably with sulphate of magnesium in small doses several times a day, and the latter by the use of an elastic ring pessary (watch-spring covered with India-rubber).

34. At the recent meeting of naturalists in Salzburg, Dr. Martin related three cases of *laparotomy for extra-peritoneal pelvic hæmatoma*, two of which ended in death and one in recovery. He favored this method of operation, with drainage by the vagina, whenever operative interference was found necessary, which, he thought, was seldom the case.

41. At the same meeting Dr. Schröder thus described his present *treatment of the pedicle in myomotomy*. He first binds the pedicle firmly with an elastic band, and removes the tumor. A good deal of blood escapes from the latter, but the stump then becomes white and bloodless. Flaps are now fashioned to a certain extent, cutting cautiously lest the elastic ligature should slip. The flaps are brought together with strong, deep sutures, which do not pass through the peritonæum. A few more deep sutures, of smaller silk, are passed in the interspaces, and now the flaps are in close apposition, except the peritoneal edges. The latter are trimmed and united with a great number of fine sutures. The elastic ligature is then removed, and wherever any blood flows additional sutures are applied. In one case he used fifty-six needles. This controls the hæmorrhage, and places the stump in effect outside of the peritonæum. A ten-per-cent. solution of carbolic acid is then applied to the cervical canal. In nine successive cases the author has employed this method with good results.

QUARTERLY REPORT ON OPHTHALMOLOGY AND OTOLOGY.

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4. The authors describe *a new practical ophthalmometer* for the determination of errors of refraction, its method of employment, and the advantages claimed for it. The latter: 1. It suppresses the error of collimation by replacing the heliometric plates of other instruments by a bi-refracting crystal. 2. It does away with all calculations, and admits of reading off the refraction of each meridian immediately in dioptrics. 3. It diminishes the number of readings for each position, in increasing the precision of the instrument sufficiently to admit of limiting the examination in all security to a single reading. 4. In examining for astigmatism alone, the meridians of maximum and minimum curvature are found immediately by its aid, which reduces enormously the amount of labor in a given case. 5. It does away with the necessity of a special room, by permitting the work to be done by daylight. 6. The instrument is sufficiently small to admit of its being placed upon any table. 7. Its price is not more than half that of other instruments of a similar kind. Javal believes that, as a general rule, in adults with marked astigmatism, the lens is deformed in the same sense as the cornea, and that the corneal astigmatism differs but little from the total astigmatism. He also believes that, in young subjects, the accommodation often acts upon the lens with the desired irregularity to compensate for a part of the astigmatism. In a short section upon the fitting of glasses, the authors lay down some rules for guidance, the most important of which seems to be to prescribe that glass which exactly suffices to do away with the asthenopia, without reference to the exact correction of the error of refraction. They do not correct the total astigmatism any more than they correct the total hypermetropia. For myopes they prescribe glasses which leave about four dioptrics uncorrected; for example, to a young *myope* of one dioptric, they give *convex* glasses of two or three dioptrics, and the myopia ceases to be progressive. For young hypermetropes they give glasses just strong enough to do away with the asthenopia, and only for the duration of the work in hand, and the hypermetropia then diminishes.

6. Parent believes it possible to make a diagnosis of ametropia by *ophthalmoscopic optometry*, by employing the inverted image, and approaching and removing from the eye the objective lens, observing the variations in size of the papilla and the parallactic displacement of the image with reference to the lens. Within certain limits, the degree of ametropia can be determined, though low degrees can not thus be measured. Astigmatism may be recognized by noting the difference in the relative motion of the image and the lens, following the two principal meridians. That lens or combination of lenses which gives the same displacement to the image that it does to the lens, is the measure of the degree of the astigmatism.

14. In a paper upon *the pathology of the color-sense* Steffan holds that there is in the central nervous organs a special center for the color-sense, which is a double one, corresponding to the double center for the sense of space in the gray cortex of both occipital lobes. If an apoplectic focus can destroy at the same time both these color-centers, they must lie very near the median line, and probably very near the space-centers. This theory strengthens the view of authors that the cause of congenital color-blindness lies in the brain. It is, however, going too far to assert that the *only* true and satisfactory explanation of congenital color-blindness is to be sought in the brain. Neither the cerebral nor the retinal theory of congenital color-blindness can alone be the correct one, for the cause of such defect may lie as well in the conducting fibers of the optic nerve as in the retina or in the cerebral color-centers. A normal color-sense presupposes a normal state and action of all three sections of our nervous visual apparatus.

17. Emmert concludes in this number his investigations into *the mechanism of the accommodation of the eye.* He holds that, owing to the intimate connection existing between the ciliary processes and the zonule of Zinn, the latter is always on the stretch and never relaxed. The older the eye, the more does the anterior part of the ciliary processes seem to project beyond the ciliary body toward the lens. Assuming that the condition of rest of the ciliary muscle is when we look into distance, and the condition of activity is when we look at near objects, it is also deemed just to assume that for near vision the radial and meridional fibers assist the circular fibers, and that therefore the entire ciliary body approximates the edge of the lens. But Emmert holds that the lines of direction or diagonals of the various groups of fibers of the ciliary muscle never coincide with the line of direction of the resultant force. Actual observation shows that the ring muscle tends to draw the ciliary body with its processes toward the lens, while the radial muscle tends to draw it in the direction of its tendon toward the apex of the cornea. It is therefore scarcely intelligible that they simultaneously tend to effect the same purpose, and the simultaneous activity of the various groups of muscular fibers can not therefore from the mechanical standpoint be defended. With this conception of the existing relations, it will be conceded that contraction of the ring muscle with simultaneous relaxation of the radial muscle is necessary for near vision, and contraction of the radial muscle with simultaneous relaxation of the ring muscle is necessary for distant vision. It is also probable that the oculomotorius must be regarded as the motor nerve of the ring muscle, and the sympathetic as the motor nerve of the radial muscle. This anatomical explanation applies as well for myopic and hypermetropic eyes as for emmetropic eyes. It is also probable that the meridional fibers perform a similar function to that of the radiating fibers. His final conclusion is that irritation of the ciliary nerves causes an artificial accommodation, and that the choroid is drawn forward by the contraction of the ciliary muscle.

23. Panas's paper upon *stretching of the branches of the trifacial for painful tic* is based upon his experience in one case. He first operated upon the frontal nerve, by an incision through the upper lid, parallel to the orbital margin, four millimetres below the eyebrow. The nerve was exposed, elevated upon a strabismus-hook, and pulled forward strongly and repeatedly. The same was then done for what he calls the internal frontal. The next day all neuralgia had disappeared and all sensibility in the territory of the frontal was markedly diminished. Three weeks later the same operation was done on the infra-orbital nerve, and with the same result. In order to determine what occurs histologically in nerves that have been stretched, Panas examined microscopically sections of nerves that had been operated upon in this manner, after dissection and maceration in osmic acid, and found that almost all the fibers were deprived of their medullary sheath. He thinks that the effect of stretching extends along the nerves as far as the nerve centers and their connected ganglia.

26. Abadie describes *a rare form of palpebral tumor*, which has the following characteristics: an indurated tissue, the limits of which can with difficulty be defined, which sends a prolongation into the orbital cavity. The skin and conjunctiva are perfectly healthy. The growth is painless except when handled, and gives no trouble to vision or motility of the eyeball, though the movements of the lid are somewhat impeded. No treatment proves of any avail in reducing the size of the growth, and, as all operative interference, in the only two cases he has ever seen, was refused, the anatomical nature of the growth remains unknown. Both the cases occurred in young children.

30. Vossius reports a case of *diphtheritic conjunctivitis*, in which he employed with success a four-per-cent. solution of salicylic acid in glycerine. This was brushed over the conjunctiva every half hour. An improvement was noticed in both eyes within the first day after this treatment had been undertaken, and on the next morning the swelling had so far diminished that the child could open her eyes. Iced compresses were also used constantly from the beginning. A two-per-cent. carbolic-acid solution had previously been used, and also the solution of boracic acid and salicylic acid recommended by Sattler for serpiginous corneal ulcer, but both the remedies, so far from causing any improvement in the symptoms, had apparently increased the swelling of the lids and conjunctiva. Within seven days from the commencement of the salicylic-acid-and-glycerine solution the swelling and discoloration had nearly disappeared from the lids and the ulceration had healed. On the twenty-first day the patient was discharged cured, there remaining only a slight, ordinary conjunctivitis.

31. In discussing *the pathology of the contagious diseases of the eye*, the authors corroborate Neisser's discovery of bacteria in ordinary gonorrhœa. In the secretion of gonorrhœal conjunctivitis they found pus-cells, epithelial cells, and micrococci. The groups of the latter are partly free, partly inclosed in pus and epithelial cells. In the secretion of diphtheritic conjunctivitis, there are epithelial cells, pus-cells and micrococci. In every case of purulent conjunctivitis of new-born children they found micrococci with pus and epithelial cells, and sometimes the bacillar bacteria. In croupous or membranous conjunctivitis micrococci were sometimes found, but not always. In some cases of granular conjunctivitis bacillar bacteria were found in small numbers. In one case of chronic dacryocystitis a few bacteria were found, and a few were also met with in the detritus at the mouth of a corneal abscess.

34. Kubli's conclusions as to *the pathology and pathogenesis of amyloid tumors of the conjunctiva* is based upon the history of most of the cases hitherto reported, though he makes no mention of several cases described by American authors, one of them by the reporter. The so-called amyloid tumor represents a conjunctival disease. In all cases which have not progressed very far, the conjunctiva is the sole seat of the disease. The favorite location is the retrotarsal fold and the neighboring portions of the tarsal conjunctiva, or that portion of the conjunctiva where the subconjunctival tissue possesses the properties of adenoid tissue. He considers four phases in the development of this growth: 1. The phase of simple adenoid proliferation in the sub-conjunctival tissue. 2. The phase of hyaline degeneration of adenoid structure. 3. The phase of exquisite amyloid degeneration. 4. The phase of calcification and ossification. The presence of few or many vessels gives to the neoplasm either a bright-yellowish glassy color and firm, elastic consistence, or a more reddish-yellow or reddish-brown color, and soft, elastic consistence. A certain diaphanous appearance is not to be mistaken. In the third phase, the tissue of the tumor is not elastic, but inelastic and brittle, though equally hard as in the second phase. If the tumor is soft in the third phase, it is likewise inelastic, brawny, and impressible. Kubli considers the disease as *sui generis*, and that it has nothing in common with trachoma. In all the cases in which amyloid disease and trachoma existed together, the latter appeared in parts of the conjunctiva unaffected by the former. He regards the occurrence of the two forms of the disease in the same patient as accidental. As treatment he advises the radical extirpation in every case where this can be done without causing very great loss of substance. In the cases where this is not admissible, he recommends partial extirpation, in hopes of setting up spontaneous retrogressive metamorphosis of the tumor. If the tumor returns in this latter class of cases, partial extirpation must again be resorted to, in order to avoid both symblepharon and anchyloblepharon.

42. In advocating the use of *iridectomy in congenital hydrophthalmus*, Dufour says that, in all the cases under his observation, the operation reduced the exaggerated intra-ocular tension, and it remained reduced after the cicatrization of the wound. The operation also tends to diminish the size of the cornea, and aids directly and rapidly in clearing up the opacity of the latter, and this is the more marked the more recent the opacity and the more rapid its appearance. The rapidity of this clearing up seems to exclude the possibility of all proliferation or immigration of cells as cause of the opacity. The opalescence Dufour considers to be the result of compression. The disadvantages of the operation are: 1. The wound gapes for a long time, although he has never seen any cystoid cicatrix. 2. Prolapse of the vitreous may occur, owing to the zonule being atrophied or very frail in these cases. 3. The rapid loss of aqueous humor may cause choroidal and retinal hæmorrhages. 4. Detachment of the retina may occur in rare instances.

47. In a paper upon *the etiology of posterior scleral staphyloma*, Rothholz asserts that the funiculus scleroticæ is the suspected anatomical predisposition for the posterior sclerectasia. The changes which must precede the bulging consist in a loosening, softening, or stretching of the sclera in the region of the funiculus, which in certain conditions of intra-ocular tension lead to ectasia at this point. These factors may be congenital or acquired. The thicker the funiculus, the more fibers there are to oppose their cross-section to the intra-ocular tension. In many eyes the tissue of the funiculus has congenitally but slight consistence, and here any increase in the intra-ocular tension would lead to ectasia. Congenital anomalies in the eye outside the funiculus may sometimes bring about more or less yielding at this point; such as tension of accommodation, bending of the head forward over near work, and marked convergence of the eyes maintained for a length of time for near work; this especially in myopic eyes.

49. Knies's paper on *sympathetic disease of the eye* is a *résumé* of the recent contributions to the subject and an admirably clear statement of what he believes to be the right view. He regards real sympathetic inflammation as always appearing as a plastic-serous uveitis, and characterized by an insidious course, against which no therapeutic means are of any use. He does not believe in Mauthner's distinction between a benignant, serous form and a malignant, plastic form. So-called sympathetic detachment of the retina, atrophy of the optic nerve, cataracts, and vitreous opacities can not stand careful criticism, and he regards them as accidental complications. The so-called rare forms of sympathetic disease are either accidental complications, a disease of one eye, the other being phthisical, or they are to be regarded as symptoms of irritation. The sympathetic inflammation of the second eye always appears under the form of a plastic-serous iridochoroiditis. The ciliary nerves are almost always normal, rarely atrophied, while the optic nerve is almost always found atrophied. In cases in which iridectomy for glaucoma in one eye is rapidly followed by the appearance of acute glaucoma in the other eye, Knies thinks the cause is to be sought in a vascular reflex which causes an acute attack in an eye already diseased. In searching for the track of sympathetic inflammation, the course along the vessels, whether arteries or veins or lymphatics, has not yet been sufficiently investigated. Knies believes that phenomena of irritation may persist for years without leading to serious disease of the second eye, while on the other hand destructive inflammation may appear without any prodromal symptom. The theory of the transfer of real sympathetic inflammation along the course of the ciliary nerves by reason of a specific inflammatory energy existing in them, seems untenable. Rejecting, therefore, the theory of the influence of the ciliary nerves, and leaving for the moment unconsidered the inter-vaginal space of the optic nerve, there remains for consideration only the course of the optic nerves and the chiasm as agents of the sympathetic inflammation. For this theory we do not need optic-nerve fibers that are still capable of performing their functions, but only the anatomical tract of their connective tissue. The passage of the inflammation from one eye to the other need not be continuous along the connective tissue, but may proceed in single, isolated patches. Knies formulates the following aphorisms: 1. The so-called sympathetic signs of irritation are reflex neuroses in the region of the motor, sensitive, and vaso-motor functions and along the channel of the ciliary nerves. The sympathetic signs of irritation are entirely independent of the appearance of actual inflammation. 2. The sympathetic inflammation is a sero-plastic uveitis, which passes from an eye already inflamed in the same manner, and usually from a traumatic cause, along the optic nerve and its internal sheath to the chiasm, and thence to the other eye. Whether the sympathetic inflammation is a septic disease or not remains still undecided. Whether fungus-germs or inflammatory products cause the slow progress of the inflammation in the prescribed track, is of little moment so far as this track itself is concerned. As regards therapeutic measures, we should never lose sight of the fact that the eye first affected is the cause and origin of the sympathetic inflammation, and that the latter once started is almost always fatal, and that, therefore, the only sure treatment must be prophylactic. Every eye that is already lost, or that is sure to be lost, which is in a condition to excite sympathetic inflammation in the other eye, must be immediately removed. Knies is inclined to think that an eye which still possesses good visual power will probably not excite sympathetic inflammation, which statement must be taken with some allowance. The immediate influence of an enucleation upon the course of a sympathetic inflammation is not only not beneficial, but very often it increases the latter in intensity. It is, therefore, perhaps, better to wait for a decline in the stage of inflammation before enucleating. At the same time the most careful antiseptic treatment should be carried out. When once the sympathetic inflammation has begun, enucleation of the first eye does not improve the prognosis, but leaving undisturbed an eye which excites inflammation certainly injures the prognosis. Knies has collected from the literature of the subject sixteen cases of sympathetic inflammation of the uveal tract which have been *cured*. Very early in the course of sympathetic inflammation, in the beginning, an extensive iridectomy may prove of use, but, if it closes up, be not too hasty about repeating the operation, for closure may, and probably will, again occur, and we thus only hasten the phthisical process. If the iris has already become adherent to the capsule, an iridectomy does direct harm, and here Knies suggests the advantage of a sclerotomy. It is, however, a good rule to avoid all operative interference except in cases of most urgent necessity.

52. The discussion on *sympathetic ophthalmia* before the International Medical Congress led to the following formal statement of belief: Sympathetic inflammation, which should be carefully distinguished from sympathetic neurosis, never occurs before a characteristic process has developed itself in the eye first injured, the principal symptoms of which are: 1. Dilatation of the posterior lymphatic spaces, with closure of the anterior lymphatics of the globe. 2. An infective plastic inflammation of the uveal tissue. The iris becomes infiltrated and covered by solid exudations; the anterior chamber is lessened; the vitreous humor, and often also the retina, is drawn forward into a funnel shape; the tension, diminished at first, is always increased beyond the normal before the transmitted affection appears; the perichoroidal lymph-space and the perineural lymph-sheaths of the optic nerve are dilated. In sympathetic disease, the choroid shows an impregnation with lymphoid cells, and there is always more or less neuritis. Microphytic organisms are also found. The eye secondarily affected shows corresponding changes of nervous tissue and choroid. The hypothesis that sympathetic ophthalmitis is explained by the reflex action through the ciliary nerves is devoid of all convincing proof. Sympathetic ophthalmitis is to be looked upon as proceeding from a septic choroiditis of definite type, not improbably resulting from an abnormal continuity between the external tissue and the uvea. The morbid changes of the vessels, the increase of the lymphoid cells, and the accumulation of microphytal organisms, are the guiding signs that may indicate the direction in which the morbid process is propagated. The path of the transmission is most probably through the lymphatic spaces of the optic nerve.

55. In the discussion on *the operative treatment of glaucoma*, before the International Medical Congress, Wecker held that sclerotomy must be resorted to in buphthalmus, in simple chronic glaucoma, in glaucoma hæmorrhagicum, and in cases where the field of vision was contracted nearly to the point of fixation. He thought that iridectomy still remained the best operation for most cases, and notably for cases of acute glaucoma. When myotics produce no effects on the pupil, sclerotomy is inadmissible, on account of entanglement of the iris, which is sure to ensue. In glaucoma absolutum, where the iris is completely atrophic, sclerotomy might be employed in preference to the older operation. ===== Bader, on the other hand, held firmly that sclerotomy was the best operation in all cases of glaucoma. He thought that the essential point in the performance of this operation was that a staphyloma of the corneo-scleral junction should result from it. He encouraged, rather than otherwise, the prolapse of the iris into the staphylomatous bulging. In performing the operation, he cuts through all tissues down to the conjunctiva.

64. In investigating the subject of *the development of the retina*, Ogneff found that, in rabbit embryos of 4 to 5 mm. long, the retina consisted entirely of spindle-shaped cells, with oval nuclei and a delicate ring of protoplasm. Processes extended inward and outward from both ends of the cells through the entire thickness of the retina. The first change was a division of the innermost cells, which became larger and rounder, with a more distinct nucleus. The processes gave off many branches, those directed inward bending round and running parallel to the inner surface of the retina. These no doubt aid in the development of the nerve-fiber layer. The next change is the development of the molecular layer between the nerves and the spindle-cells lying over them. These two layers, the nerve-fiber and the molecular, become more and more differentiated and increase in thickness; and, in the latter, free nuclei and round cells become visible, which are smaller than either the nerve-cells or the spindle-cells. The differentiation of the retina ceases with the appearance of the rods and the two granule-layers. The rods appear in front of the processes of the cells which lie in the outer part of the retina. The separation of the two granule-layers is shown in the division of the cells in the outer part of the retina into much smaller cells shortly before the appearance of the rods, while those cells which lie deeper become rounder and larger.

68. Schoen reports an observation upon a case of *retinal venous pulsation*, occurring in a patient with very slow cardiac action. The heart-beats varied between sixteen and twenty-three to the minute. Over the left side of the heart there was a systolic murmur, which was most intense in the second intercostal space next the sternum. There was probably some irritation of the vagus, perhaps by the pressure of an aneurism upon the descending aorta. In both eyes there was a moderate physiological excavation and marked pulsation. Immediately after the radial pulse, there was a sudden swelling of the retinal veins. After the maximum of dilatation there was a gradual contraction, followed by a period of rest of two seconds. Complete emptying and paling never occurred, for all the veins showed a constant, moderate blood current. There was no pulsation in the arteries. Schoen regarded the venous pulsation as a symptom of stasis, due to obstruction to the flow of the usual quantity of venous blood by compression of the vein. The situation of this compression was probably somewhere in the course of the optic nerve as far back as the lamina cribrosa.

69. In discussing the subject of *commotio retinæ*, Herdegen assumes that the visual disturbance and the retinal affection do not progress in the same degree, and he agrees with Berlin that the former is entirely independent of the latter. In many cases a transient astigmatism of the lens, myopic in character, has led some authors to believe that this was the cause of the defective vision, and was brought about by a spastic condition of the ciliary muscle, of an irregular character. In many of the cases of so-called commotio retinæ, however, Herdegen believes that rupture of the choroid, no matter how small, is sufficient to account for the accompanying visual disturbance.

71. In a paper upon *embolism of the central retinal artery*, Haase brings up the subject of the dependence of retinal hæmorrhages upon diseases of the heart and blood-vessels, with special reference to the influence of other circumstances in the causation of the hæmorrhages so often met with in one eye. In these cases he indorses Leber's view of embolism of small branches of the central artery. He doubts the possibility of making any certain differential diagnosis between embolism and hæmorrhage into the trunk of the optic nerve. Although the retina at first preserves its structure in cases of embolism, yet very important changes must occur in the nervous structure which interfere with either conduction or perception. The nature of these changes and the layers of the retina involved have not as yet been definitely settled. Moreover, we are as yet as little able to explain satisfactorily the manifold changes in the retina demonstrable with the ophthalmoscope, such as the red wall round the macula, which has received so many explanations.

72. In the discussion on *the relation of optic neuritis to intra-cranial disease* before the International Medical Congress, Leber affirmed that optic neuritis in cerebral diseases was a true inflammation, not different from other forms of papillo-retinitis. It is not caused by stasis in the retinal veins from compression of the cavernous sinus, due to diminished intra-cranial space. It is not the result of irritation of the vaso-motor nerves, caused by the cerebral affection. The optic nerve is the path of communication between the affection of the brain and that of the eye. An essential part in this transmission is taken by the effusion of a serous fluid into the sheath of the nerve extruded from the cranium by the increased intra-cranial pressure. This fluid does not act by simple mechanical pressure, and it probably possesses phlogogenic properties. The origin of papillo-retinitis in cerebral diseases might be explained by assuming that the intra-cranial inflammation produced serous effusion, which passed into the optic sheath, and exerted an irritating action on the papilla and neighboring parts of the eye.

79. Adams reports two cases of *suppurative inflammation of both eyeballs from embolism*, occurring during an attack of endocarditis, following an old valvular disease of rheumatic origin. In one case the two eyes were almost simultaneously affected; in the other, there was an interval of about a week. Both patients passed into a typhoid condition and died. In one case there were numerous other embolic infarctions; in the other, none. Adams raises the following questions: First, Why do emboli under these conditions lead to suppurative panophthalmitis? and, second, Is the result due to the septic nature of the emboli, or is it brought about in a mechanical way? In the first case a complete examination was made, but no micrococci or bacteria were found. In the second case no autopsy could be obtained.

84. In an article on *extirpation of the lachrymal sac*, Schreiber gives the following indications for the performance of the operation: 1. In very obstinate purulent dacryocystitis with stenosis of the nasal duct, which admits of being probed, but has existed so long that a slight bulging of the region of the lachrymal sac has been produced with thickening of its walls. 2. In fistula of the lachrymal sac, especially in cases in which frequently-recurring attacks of inflammation have caused cicatricial adhesion of the skin with the wall of the sac, and induration. 3. In tedious catarrh of the lachrymal sac with complete patency of the nasal duct. The steps of the operation are as follows: An incision, 2 millimetres long, and 4 millimetres from the inner canthus, is to be made vertically, with its upper end inclined slightly forward, only through the skin, so as to avoid wounding the sac wall. The edges of this incision are to be carefully dissected up, and the anterior wall of the sac laid bare. The edges of the wound are then to be held apart with forceps or hooks, and the sac is to be seized with forceps and carefully dissected up from its attachments, keeping close to the lachrymal bone, either with scalpel or blunt-pointed scissors. If free bleeding follows, this must be arrested before the operation can be continued. After the sac has been removed, the cavity left is to be carefully scraped with a Volkmann's sharp spoon, and the mucous membrane of the nasal duct scraped out and destroyed as far as possible with a smaller spoon of the same kind. The wound is then to be washed out with a two-per-cent. solution of carbolic acid, and the cavity is then to be closed accurately with sutures.

85. Van Duyse considers the subject of *coloboma of the eye and its connection with congenital serous cyst of the orbit*, based upon an examination of one case of his own and of the cases hitherto published. The cysts here considered are of complete dermoid texture, presenting at the level of the plane of the fronto-orbital aperture, either at the internal or external angle. In most of the cases they present a pedicle attaching them to the skeleton, a pedicle which is either full or hollow. They are not perceived at first during a varying period, but about the age of puberty they grow and excite attention. It is well known that an irregular closure of the ocular cleft in the fœtus may end in a pronounced ectasia of the cicatrix and its immediate vicinity, that is, of the floor, so-called, of the eye. The conclusions drawn by Van Duyse from his own case are as follows: The slightly microphthalmic eye presents a sclerectasia caused by the expansion of a coloboma of the choroid and of the sheath of the optic nerve, itself staphylomatous. The other eye shows a still more pronounced degree of the same anomaly; it has remained rudimentary in consequence of the development of the coloboma. The latter has become encysted, developed in filling the orbit, and pushing before it the conjunctiva and lower lid. As regards treatment, the preliminary puncture of the tumor is always of great value in that it permits of setting aside, after chemical analysis, the idea of an encysted dropsy of the meninges (hernia of the embryonic cerebral vesicles). Aside from the first phase of development, the connection between the hernial sac and the cranial cavity is a direct one; the principal seat of the encephalocele, always congenital, is the vicinity of the lachrymal bone, and here serous cysts are also found.

89. Nieden's paper on the connection between *diseases of the brain and diseases of the eye* is an interesting clinical contribution. The *first* case reported was one of fibro-sarcoma of the right cerebral hemisphere, with double optic neuritis and papillary atrophy, occurring in a man, aged 25, as the result of an injury to the skull some months before. The autopsy confirmed the diagnosis in part. The injury had involved the skull in the region of the fronto-parietal suture, and had caused a partial detachment of the lamina vitrea, and this fragment had been shoved beneath the neighboring bone, had pushed the dura mater before it and into the underlying cerebral surface. The *second* case was a gliosarcoma of the pons and medulla on the right side, with associated paralyses of the eyes, optic neuritis of both eyes, right facial paralysis, and left hemiplegia, occurring in a man aged 26. The diagnosis was also confirmed by the autopsy. The *third* case was a cystoid degeneration of the right lobe of the cerebellum, double optic neuritis, slight disturbances of co-ordination, and sudden death. The *fourth* case was a progressive general paralysis, gray atrophy of both optic nerves, coming on three years before the psychosis, and atrophy of the occipital lobe on the right side. This is an exceedingly interesting case. The early appearance of myosis at the same time in both eyes; the amaurosis of the left eye, caused by atrophy of the trunk of the optic nerve; the appearance of total amaurosis for some time; the appearance of general cerebral symptoms; and the atrophy of the occipital cerebral lobe on the right side, found at the autopsy, are all points of great interest. The cases are all very carefully reported.

91. In his paper on *conjugate deviation of the eyes in diseases of the brain*, Leichtenstern lays down the following formulas: 1. If a hemiplegic patient shows conjugate deviation of the eyes to the opposite side, this points with great probability to a focus of disease in the cerebral hemisphere on the opposite side from the hemiplegia. 2. If a patient with hemiplegia and hemiplegic irritative symptoms (unilateral convulsions, semi-lateral epilepsy) shows conjugate deviation of the eyes toward the side of the paralyzed and convulsed limbs, this points with great probability to a focus of disease in the cerebral hemisphere on the opposite side to the hemiplegia. 3. If a patient with hemiplegia (without convulsions) shows conjugate deviation of the eyes toward the paralyzed side, this points with great probability to a focus of disease in the half of the pons opposite to the hemiplegic side. 4. If a patient with hemiplegia and convulsions of the paralyzed limbs (hemiplegic epilepsy) shows a conjugate deviation of the eyes toward the side opposite to the hemiplegia, this points with great probability to a focus in the half of the pons opposite to the hemiplegia.

92. Steinheim reports a case of *temporal hemianopsia*, in which the diagnosis was made of a neoplasm filling the entire nasal and naso-pharyngeal cavities, which pressed the hard palate down into the buccal cavity, and extended upward into the ethmoid and sphenoid bones. This had probably caused a basilar pachymeningitis. The temporal hemianopsia was caused by pressure on the anterior or posterior angle of the optic chiasm, or perhaps upon its center. The neoplasm and consequent pachymeningitis must have affected the chiasm from below upward.

93. Wilbrand, in his paper upon so-called *psychic blindness*, opens with a discussion upon the localization of the central visual center, which he places in the cortex of the occipital lobe of each cerebral hemisphere. Symptoms of this psychic blindness in pathological conditions of the cortex of the occipital lobe are only of value when a partial disease of one visual sphere is present; for, in extensive disease of both occipital lobes, bilateral cerebral amaurosis appears; while, in unilateral functional disturbance of one visual sphere, the homonymous retinal halves of both eyes are completely blind. The condition of affairs is different in cases of partial disease of one visual sphere, which are distinguished by the appearance of an incomplete lateral hemianopsia of the opposite side.

94. Poncet arrives at somewhat different conclusions, as to *the effects of division of the trigeminus upon the eye*, from those of some recent investigators. The physiology of division of the fifth nerve he divides into two different parts: 1. Division of the sensitive fibers. 2. Division of the fibers of the sympathetic. The division of the sensitive fibers, to which succeeds the anæsthesia of the cornea, is accompanied by rapid disintegration of the latter if the eye is not scrupulously protected from injury and vibrios. The division of the fibers of the sympathetic causes congestion of the conjunctiva, protrusion of the eyeball, myosis, and certain internal phenomena which may be the origin of a deep ophthalmitis. In every properly conducted division of the trigeminus, the current of the sympathetic is preserved, owing to the carotid root of the ophthalmic ganglion. From his histological investigations, Panas concludes that the vascular theory of the contraction of the pupil must be completely abandoned for that of irritation of the sphincter, or of paralysis of the radiating fibers. Division of the trigeminus, or of the ophthalmic branch, between the eye and the ganglion of Gasser, produces totally different effects from those produced by division of the optic and ciliary nerves. The keratitis consequent on lesion of the trigeminus, caused by the repeated action of slight, unperceived traumatisms, extends from the surface inward, and is due to the diapedesis of the leucocytes coming from the conjunctival vessels. It may be followed by hypopyum. The only lesions met with in the deep tissues of the eye are due to circulatory disturbances. They consist in an œdema of the most internal layers of the retina, characterized by a serous exudation into the layer of optic-nerve fibers, an hypertrophy of the protoplasm and nuclei of the ganglion cells, and by the same alteration in the internal granule layer. The myosis, which immediately follows division of the ophthalmic branch, is a muscular myosis due to a predominant action of the third pair, after division of Franck's filament. The phenomena of the retinal œdema may be explained by a reflex irritation of the great sympathetic, starting from the central end of the trigeminus.

95. Michel has performed a series of experiments upon animals for the purpose of determining *the influence of disturbance or obstruction to the course of the blood current in the carotid artery upon the eye.* If a ligature be placed round the carotid and tied, in a very short space of time the optic disc of the same side becomes pale-white, and the blood column disappears from all the vessels, arteries, and veins. If both carotids be tied, the same appearances are observed in both eyes. This leads to the supposition that disturbances in the circulation of the carotid, developed by diseased processes in the carotid and its vicinity, such as aneurisms or spontaneous obstruction, will produce a more or less marked change in the intra-ocular circulation, or a considerable disturbance of nutrition in the structures of the eye. Among the latter, the first to appear is cloudiness of the lens. The connection between this lenticular opacity and sclerosed or atheromatous changes in the wall of the carotid is undeniable. Michel considers four classes of cases, viz.: 1. Uniocular cataract, either with unilateral sclerosis of the carotid only, or with this sclerosis in both carotids, but more developed in one. 2. Binocular cataract, with the opacity more advanced on the side corresponding to the most marked development of sclerosis in the carotid artery. 3. Binocular cataract, developed simultaneously or to the same degree on both sides, with equally marked sclerosis in both carotid arteries. 4. Cataract with sclerosis of the carotid artery and swelling of the thyroid gland. As a conclusion of his experiments and observations, he asserts that atheromatous degeneration of the carotid artery is intimately connected with opacities of the lens; and that the so-called senile cataracts, as well as uniocular cataracts of unknown etiology, are thus sufficiently explained.

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7. In his paper upon *aural exostoses*, Cassells draws the following conclusions: Osseous tumors of the external canal are of two kinds: the one, called hyperostosis, is a hyperplasia; the other, exostosis, is a new growth. Hyperostosis is never seen until the osseous canal is completely ossified; exostosis appears earlier. Exostosis is found arising from a point near the junction of the osseous canal with its cartilaginous portion; hyperostosis is seen only in the inner or osseous end of the external canal. Hyperostosis is always conical in shape, and never pedunculated; in exostosis there is always a pedicle, and its shape varies. Hyperostosis is of ivory hardness; exostosis can be pierced to a varying depth. Hyperostosis is not movable on pressure; exostosis is slightly movable. Hyperostosis is often seen without any other disease of the ear; exostosis is nearly always complicated. Hyperostosis may exist in the canal with normal hearing; exostosis is almost always attended by a defect in the hearing. The operation for the removal of hyperostosis is only justifiable when its mechanical pressure has been ascertained to be the sole cause of the deafness, or when a coincident discharge from the ear exists, the escape of which may be hindered or arrested by the presence of the tumor.

10. Barr speaks especially of *adenoid vegetations of the pharynx and their influence in causing aural disease.* Disease in the ear may be caused by these vegetations encroaching upon the pharyngeal mouth of the tube, thus causing mechanical closure; or by accompanying inflammation of the mucous membrane of the Eustachian tube; or by extension of that inflammation to the mucous membrane of the tympanum, or even to the mastoid cells; or through interference with the nasal breathing. When the nasal passages are markedly obstructed, a rarefaction of the air in the tympanic cavity is produced by every act of swallowing, and the tympanic membrane with the chain of ossicles is forced inward to an abnormal degree; or obstruction of the nasal passages may induce mischief in the ear by causing sudden abnormal condensations of the air in the tympanum. Barr refers to digital examination as the best for these adenoid vegetations, and to their removal by means of the finger nail. He considers it a mistake to judge of the condition of the upper pharyngeal space from the appearance of the back of the throat. The latter may appear almost or quite normal, and yet the naso-pharynx may be involved in very important morbid changes.

19. In recommending *myringodectomy for sclerosing otitis*, Paquet gives the following directions for the performance of a modified operation: He employs a small bistoury with an elbow, the blade of which, 2 mm. broad and 4 mm. long, is slightly bent in the form of a sickle. The end of the blade is convex and cutting. He punctures the drum membrane 1¼ mm. in front of the external apophysis of the hammer, and then lowering the hand he divides the membrane obliquely downward and backward, so that the lower extremity of the incision lies in the lower semicircumference of the membrane. By this first incision the tensor tympani may be divided, or at least its fibrous sheath. The knife is then carried toward the posterior segment of the membrane, directly below the posterior pocket of Troeltsch, 2 mm. behind the handle of the hammer, so as to avoid the chorda tympani, and the second incision is then made downward and backward, parallel to the handle of the hammer, and ending at the end of the first incision. A V-shaped incision is thus made, with a flap inclosed and adherent by its base. This permits of thoroughly dividing the tensor tympani, of destruction of adhesions in the drum cavity by a synechotome, and of resection of the inferior part of the flap or of the handle of the hammer.

22. In a paper upon *inflammation of the upper part of the tympanum and mastoid antrum*, Barr states that inflammatory products are apt to be retained in these parts, and thereby maintain the purulent process. There is a difficulty in the spontaneous emptying of these parts, and also in the efficient use of cleansing and medicated solutions. He points out the value of Siegle's suction apparatus in aiding in cleansing the parts. He describes the method of clearing away purulent or caseous *débris* from the affected parts by means of the middle-ear syringe. After this has been effected, efforts must next be made to remove the chronic inflammation, and this is best done by a strong solution of silver nitrate, injected in small quantities by the middle-ear syringe.

24. McBride discusses *a form of middle-ear deafness*, which is a subdivision of what authors describe as proliferous inflammation of the tympanum, or dry catarrh. The deafness in the kind of case described, McBride considers, must be due to one or more of the following conditions of the tympanum: 1. Thickening of the mucous membrane or bone. 2. Fresh formation of fibrous tissue or bone, causing adhesions. Proliferous inflammation of the tympanum might be the remains of an old catarrhal process, which had extended along the Eustachian tubes. The prognosis of these cases is unfavorable.

25. Lucae has an interesting paper upon *optical vertigo from increased pressure in the ear*. By this he means those symptoms of optical vertigo occurring in patients with defects in the drumheads and open Eustachian tubes after suddenly increased atmospheric pressure in the external auditory canal, from the use of the so-called auditory-canal air-douche. The symptoms are a species of dark veiling before the eyes, only when the eyes are open, accompanied by marked acceleration and deepening of the respiration. These symptoms sometimes do not appear until after the cessation of the pressure. The eye on the irritated side is abducted, and an examination reveals crossed diplopia. In none of these cases was there any noticeable rotation of the patient. These symptoms only occurred in cases of partial or total loss of the drumhead with open Eustachian tubes. It is probable that the increase of atmospheric pressure in the tympanic cavity produces a corresponding change of pressure in the cerebro-spinal fluid, which acts as an irritant on the dura mater.

26. Barr's paper on *caseous accumulations in the middle ear regarded as a probable cause of miliary tubercle* is ingenious, though it will not be universally accepted as conclusive. He considers that the peculiar structure of the tympanum favors the retention, drying, and ultimate caseation of the catarrhal products formed therein. In speaking of the facilities for absorption of the caseated matter afforded by the blood-vessels and lymphatics of the middle ear, the author considers that absorption by the former leads to general tuberculosis, and absorption by the latter to local tuberculosis, and especially to tubercular meningitis. There is special danger of tubercular self-infection when such caseous collections exist in persons of scrofulous tendencies. There is a stage in the purulent process when the tendency to tubercular disease is greatest, and this is after the discharge from the ear has spontaneously ceased or been cured by treatment.

28. Woakes's paper on *paretic deafness* is limited to the consideration of neurotic lesions of a paretic character of the muscular apparatus of the middle ear, including the Eustachian tubes. The symptoms are characteristic and constant, negative as regards the ear, objectively positive as regards the palate and faucial region.

36. The article of Féré and Demars describes in detail the results of the treatment of *Ménière's disease* by the sulphate of quinine, and insists upon the rules laid down by Charcot for the employment of this mode of medication. In the beginning the disease is manifested under the form of attacks of short duration, occurring at intervals more or less long, and divided by periods of perfect calm. When aggravated, the transient attacks approximate and coalesce into an habitual vertiginous state, interrupted by paroxysmal exaggerations of the ordinary symptoms. If the patients suddenly change their point of fixation, they are subjected suddenly to a violent attack, and believe themselves to be overthrown. They never feel equipoised, but experience a constant sort of turning in one direction or the other. These permanent sensations are often accompanied by subjective noises in the ears. The end of the attack is often marked by nausea and vomiting. The treatment consists in doses of 60, 70, and 80 centigrammes of quinine sulphate daily, which at first aggravates the symptoms. At the end of eight or ten days the medication is stopped, and there is a notable diminution of all the symptoms. After an interval of eight days the quinine is again given in similar doses and for the same period, and so on unto the end. The duration of the treatment varies in different cases.

38. In an article upon *the connection between the wisdom teeth and deafness*, Cooper holds that in the process of dental evolution a prejudicial effect is often wrought upon the ears, the deafness being, in fact, the physiological concomitant of the tardy tooth development. The deafness is not always in the position of such obvious causal relationship with the teeth as to justify on this ground alone the removal of these very necessary portions of the economy. The form of deafness that dates its inception to the period of the eruption of the wisdom teeth is in no way distinguishable from the ordinary chronic deafness, described by Toynbee under the head of "rigidity of the mucous membrane of the tympanum," and by Roosa as "proliferous deafness."

QUARTERLY REPORT ON ANATOMY AND PHYSIOLOGY.*

No. IV.

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1. Lesshaft.—The causes which determine the form of the bones. [Internat. Med. Congr.] "Brit. Med. Jour.," Oct. 1, 1881.
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1. Lesshaft gives the results of experiments made by himself and Popoff upon *the causes which determine the form of the bones*. Some of his conclusions are: 1. The development of any part of a bone is in proportion to the activity of the related muscles. 2. When the resistance of neighboring organs is lessened, a bone becomes thicker toward the part which offers the least resistance. 3. When pressure is exerted on the bone from the outside, the development is least on the side where the pressure is greatest. 4. Aponeuroses exert a lateral pressure upon the bones, which is diminished when the aponeuroses are divided.

2. Struthers found the *supracondyloid process* present in two and a half per cent. of the subjects whose humeri he had examined. Turner observed it in two per cent. of his cases. According to King, this anomaly is as frequent among the blacks as among the whites. Struthers and others remarked that the presence of this process in a number of different species and the variations in anatomical relations which it displayed were explicable only on the Darwinian theory of development.

4. Laborde argues that the power of *rhythmic contraction of some muscles*, those of the heart for instance, is inherent in the muscular tissue itself, and is not dependent upon the intervention of the nervous system. The arguments for this view in the case of the heart are that rhythmic movements may be observed in this organ in the embryo of the chick before there is any trace of the nervous system, and that these movements persist after death when the influence of the nervous system is no longer exercised. [We should doubt this last statement.] Richet, in commenting on the rhythmic contraction of muscles, remarked that the oscillations described by a muscle when stimulated by a slow faradaic current showed a gradual decrease followed by a gradual increase in amplitude, so that the entire trace had an undulating form. This indicated, as he thought, a constant struggle between two opposing tendencies, of which sometimes one, sometimes the other got the upper hand; the muscle being urged on one side to come to rest, on the other to keep on contracting. [Laborde's views receive confirmation from the results of different observers, collected by François-Franck, and cited in the last Quarterly Report (in the October number of this journal, p. 434).]

5. Anderson, in an exhaustive review of *the changes which the omo-hyoid exhibits in different species of animals*, concludes that its anterior belly is to be regarded as homologous with the sterno-hyoid, its posterior belly as corresponding to the subclavius. The tendinous center is not to be considered, as Henle thought, the homologue of a cervical rib, but is rather one of the tendinous intersections in the general muscular mass of which the omo-hyoid forms one portion, the rest being variously subdivided in the different classes of animals to form sterno-hyoid, sterno-thyroid, cleido-hyoid, and the other muscles.

7. Teissier employs an argument in favor of the existence of an *independent muscular sense*, which is derived from his own experience. On one occasion meeting with an accident which rendered his arm useless, he attempted to raise the limb and received a very distinct impression of having moved it through the space of a foot or more. Yet his arm had not moved at all, and the palm of his hand had remained during the whole time in contact with his thigh. Here the consciousness of muscular effort could not be ascribed to any alteration of tactile relations, as those who consider the muscular sense to be a variety of general sensibility allege; on the contrary, the fact that the general sensibility remained intact, and was yet masked by the feeling of muscular effort, serves to show not only the independence but also the superior intensity of the latter.

8. Onimus has studied the *impressions produced by the contact of the sole of the foot* with blackened surfaces, and from these deduces the various relations of the plantar surface during the suc-

cessive acts of progression. The act of walking is thus seen to be a true rotary movement, each part of the foot in succession coming into contact with the ground. A pace, therefore, consists of two phases, in the first of which the heel strikes the ground and receives the weight of the body, while, in the second, the toes and heads of the metatarsal bones furnish the point of support, and at the same time the point of application of the force which propels the body forward to take the next step. In the horse a similar mechanism obtains, the fore-legs here taking the part of the heel, and the hind-legs that of the anterior part of the foot. In discussing the muscles of locomotion, the author agrees with Pettigrew that the division into antagonistic groups is a fallacious one. The truth is that almost all these muscles act together, and the efficacy of any group is impaired by loss of power in another, from section or other cause. The united action which the muscles of the leg possess, irrespective of any special extensor or flexor function, is to raise the foot upon the toes and produce the forward propulsion of the body in the second phase of the locomotive act. An interesting part of Onimus's article is the description which he gives of the different varieties of plantar traces consequent upon morbid alterations of the attitude of the sole (club-foot, etc.). [Strangely enough, Foster in his "Physiology" says that in walking the toe is regularly the first part of the sole planted upon the ground. A moment's examination of his own gait will convince any one that such a tip-toe mode of progression is not only slouching in appearance, but unnatural; and that Onimus is right in describing the most natural and most graceful step as a wheel-like movement, in which each portion of the foot, from the heel to the toe, is brought in turn into contact with the ground.]

9. Wilde describes an instrument, called the "kyrograph" [cheirograph?], by which *the involuntary movements made by the hand* when left to itself are registered. These movements are partly rhythmical, and then generally represent regular deviations of the hand consequent upon successive respiratory impulses, the direction of the deviation being usually to the left. To such regular undulations are added others more minute, which are ascribed to impressions derived from the circulatory or nervous system. Irregular deviations, directed mostly to the right, are caused by reflex muscular movements brought on by any sort of stimulus. [The analysis of the cheirographic tracing gives nearly the same results as are furnished by the plethysmograph used by Mosso for determining the volumetric variations of the limbs or of the brain.]

10. James believes that the increased intensity of reflex action after removal of the brain is not due to removal of *a reflex inhibitory center*, but to a concentration of nerve force, which had before been expended upon cerebral action, in the performance of a spinal function. As evidence for this view he cites his experiments, in which a muscle after removal of the brain was found to be capable of doing more work; and he suggests that an estimate of this difference of efficiency before and after removal of the brain, since it represents the energy which before existed in the brain but is now concentrated upon the performance of muscular work, will furnish the mechanical equivalent of cerebral energy. He also suggests that the use of the sheath of Schwann and of the myeline is to increase the "tension" of the nerve force, since nerves through which currents of low tension pass, such as those which go to unstriped muscular fiber or are sensory in function, are poorly provided with these adjuncts.

11. Hammond supposes that *the cortical auditory center* is situated in the angular gyrus, a short distance behind the posterior extremity of the horizontal limb of the Sylvian fissure. He deduces this from the correspondence existing between this portion of the cortex and other parts of the auditory tract, both in size and shape of nerve-cells and in their simultaneous development in different animals. Word-deafness, or the condition in which spoken words, though heard, failed to convey the appropriate idea, which was yet immediately apparent when the word was written, resulted from a lesion in the neighborhood of this center. The auditory tract has already been traced from the auditory nucleus to the nucleus dentatus of the cerebellum. From this point it passes to the cerebrum, and probably finds its way to the cortex either through the optic thalamus or posterior part of the internal capsule.

12. At the International Medical Congress, Goltz and Ferrier presented specimens which seemed to corroborate their respective views on the subject of *cerebral localization.* Goltz's specimen was a dog in which most of the cortex had been removed, with the result of producing enfeeblement of intelligence and of special sense, but no paresis of motion. Ferrier showed monkeys in which localized lesions of the cortex had produced paresis.

13. Laborde has found the same *disturbances of equilibrium from a lesion in the restiform bodies*, at the point where the fibers to the semicircular canals are given off, that result from section of the canals themselves. The nucleus of the fifth nerve was necessarily involved in the lesion, and it was remarked that ulceration of the cornea ensued, just as if the nerve itself had been divided in its peripheral portion.

14. Brown-Séquard thinks that he has shown that the decussation of *motor impulses* takes place neither in the pyramid nor in the pons. Indeed, the place at which section will produce paralysis on the opposite side of the body varies in different animals. He also believes that the passage of motor fibers occurs partly through the decussation in the pons, partly by way of the corpus callosum.

15. Woakes supposes that the *inferior cervical ganglion of the sympathetic* is a center in which various afferent impulses are correlated with each other, and transformed into afferent vaso-motor discharges. According to him, the association of vertigo with various stomach disturbances, precordial distress, etc., is due to an excitation of this ganglion, while the presence of a number of similar correlated symptoms, without the existence of vertigo, is regarded as evidence of paresis of this nerve-center.

16. Bert concludes, as the result of his experiments on dogs, that each nerve forming one of *the roots of the lumbar plexus* presides over a single group of muscles having a special common function. Thus, the first nerve supplies the sartorius, the psoas, and the rectus femoris, a group of muscles which unite in producing flexion of the thigh. The second and third supply muscles which produce extension of the leg. The fourth supplies the posterior part of the biceps, the semi-tendinosus, the semi-membranosus, constituting the flexor group of the leg, the adductor magnus, and some muscles which in dogs act to extend the thigh. The fifth nerve in dogs governs the muscles which move the tail as a whole. [Laborde, commenting on this paper, remarked that clinical facts agreed with this law of nerve distribution. It may be added that there are a number of similar instances in which muscles related in function receive a single nerve supply. A well-known example is found in the superior gluteal nerve, which governs the action of internal rotation of the thigh by means of the tensor vaginæ femoris, the gluteus medius, and the gluteus minimus.]

17. Laura traces *the deep origin of the hypoglossal and other cranial nerves.* The former arises in part directly from the cells of the hypoglossal nucleus, partly from fibers which seem to enter the median raphé of the medulla, but which really terminate in a group of cells interposed between the raphé and the hypoglossal root. It is also probably derived in part from what is variously known as the nucleus ambiguus and the anterior accessory pneumogastric nucleus. The processes from the cells of the nucleus ambiguus pass backward to a point near the pneumogastric nucleus, and there turn inward, without joining the latter, and form a marginal fasciculus in front of the hypoglossal nucleus. What has been called the anterior accessory hypoglossal nucleus, situated along the hypoglossal nerve-roots and in front of the hypoglossal nucleus, seems in most cases to have no connection with the nerve. The pneumogastric root-fibers are not connected with the scattered cells which lie in front of them. The so-called external auditory nucleus is not in connection with the root of the auditory nerve. The groups of cells designated as the nuclei of the facial, abducens, and trigeminus are in direct connection with their respective nerves.

18. Fäsebeck regards *the motor portion of the fifth nerve* as an independent nerve, which, from its relations, he would term the "facialis profundus." At the International Medical Congress he exhibited a dissection of the nerve, which seemed to confirm his view.

19. Cunningham commented on Ruge's so-called *law of nerve-supply as an infallible index of the homology of muscles*, by which, the identity of two nerves in two different animals being proved, an exact correspondence will hold between the muscles to which the nerves are distributed. Along with Kölliker and others, Cunningham thinks that this law, although furnishing an approximate guide in tracing muscular relationships in the different animals, is by no means invariably true.

21. According to Laura, the following statement gives a fair representation of the general *course of the nerve-fibers in connection with the various groups of cells found in the spinal cord.* 1. The cells of the anterior gray cornua send out processes which are continuous with the anterior nerve roots and, in the cervical region, with the roots of the spinal accessory nerve. 2. The fibers of the anterior commissure are in connection with the cells of both the anterior and posterior cornua. 3. The white lateral columns likewise receive fibers from both sets of cells. 4. The cells which constitute the column of Clarke in the dorsal region of the cord give off processes which first pass inward then turn and pass outward through the anterior cornua into the white lateral columns. Those cells which, in other regions of the cord, occupy the place of Clarke's column are not to be considered a continuation of the latter, because their processes take an entirely different course, running outward and forward to the anterior roots.

22. Obrastzow gives the following enumeration of *the morphological elements of the red marrow:* 1. Ordinary red blood corpuscles presenting various irregularities of shape. 2. Darker red cells, nearly globular, of rather large size, and in some cases exhibiting a tendency to division. 3. Nucleated red corpuscles, globular in shape and frequently showing capability of amœboid movement and of division. 4. Pale marrow cells of varying size, which, when first seen, are non-nucleated and colorless, but which afterward form a nucleus by the gradual condensation of "nuclear matter" scattered throughout the cell, and which also take up coloring matter, and then closely resemble the cells of the preceding group. 5. Ordinary marrow cells with one or more large nuclei. These cells possess the property of fusing together to form large multinuclear masses, very like the bodies next to be described. 6. Giant cells which contain many nuclei and are either granular or nearly homogeneous. There are also found heaps of granules without nuclei, and masses which on the addition of acetic acid are seen to consist of several cells. 7. Cells containing pigment or entire red corpuscles are rare. Free nuclei are also found. All these forms when taken together constitute an unbroken series, in which the characteristics of one set shade so gradually into those of the next, that the different groups can only be regarded as representing successive phases in the development of one cell. Obrastzow regards as the starting-point of the series the pale marrow cells, and especially those forms which are small and colorless, and which he designates as proto-leucocytes. One of these proto-leucocytes may either take up coloring matter and pass through the several phases of a nucleated red cell, and a non-nucleated globular cell, and finally emerge as a fully-developed red blood corpuscle; or it may degenerate into the ordinary marrow cell, which by agglutination with others of the same class becomes a giant cell, which in its turn breaks down into a mass of amorphous granules. [Many microscopists agree with Obrastzow in acknowledging the presence of this unbroken series of elements in the marrow, and also in the interpretation according to which it represents a true developmental succession whose outcome is the red corpuscle. Views, however, are divided as to the significance of the giant cells, a large proportion, perhaps the majority, of physiologists holding them to be evidences of a formative rather than of a degenerative process.]

24. For *numerating the blood corpuscles* the authors use an instrument which is a combination of those of Hayem, Malassez, and Gowers. The present paper consists mainly of a description of the precautions to be employed, and of a consideration of the sources of error. The latter are shown to be seated in a faulty construction of the instrument, when of course the error is constant, or to be dependent on faults in the observation. These latter variable errors are made the subject of a careful discussion. Their probable amount was deduced from observation and estimated by the method of least squares. The authors find that, when the numeration includes five thousand corpuscles, the probable error is reduced to one per cent., while, when only a few hundred are counted, the error may rise to five or ten per cent. These results agree very well with deductions made upon purely theoretical grounds. The variations between results obtained with different instruments were very slight.

26, 27. Moxon has given a very interesting series of lectures on *the conditions underlying the cerebral circulation.* He believes that overcharging of the brain with blood either by increased inflow or by obstructed outflow is very effectually guarded against. Entry of the blood to the brain is checked partly by the self-regulating action of the heart itself, whose contractions decrease in frequency as soon as the peripheral pressure rises, partly by inhibition of the heart's action due to stimulation of the pneumogastric. The latter result is brought about by compression of the tense roots of the pneumogastric by distention of the adjacent choroid plexus, which, of course, takes place as soon as the blood begins to pour into the brain in excess. The effect of this mechanism on the heart is seen in the different rate of pulsation in the upright and in the recumbent postures. On the other hand, the escape of blood from the brain is checked by (1) the upward direction of the veins of the vertex, whose blood has thus to mount against the force of gravity, (2) the existence of dilatations and of septa in the sinuses, preventing the onward flow, (3) the friction due to the extent of surface which the internal wall of the sinuses presents, (4) the opposition in current between the superior longitudinal sinus, in which the blood runs backward, and the veins of the hinder part of the brain, which run forward to empty into this sinus. This latter arrangement produces a sort of "locking" at the point at which the veins empty into the sinus, as the blood can not pass from the former into the latter unless the pressure in the veins is greater than in the sinus. Hence these veins are always full, and, consequently, the arteries which supply the parts which they drain are especially liable to distention and rupture. It is noticed in this connection that the parts of the brain which are essential to the performance of the vital functions, and especially the great ganglia of the cerebrum, the pons, and the medulla, are preserved from the injurious effects of this stasis by discharging their blood beyond the lock, and near the point of exit of the blood from the cranium. Moreover, the effect of this stasis is modified by the presence of the inferior longitudinal and the straight sinuses, which assist in draining away the blood. By these several arrangements the supply of blood to the brain is kept nearly constant, and active cerebral congestion with high intra-vascular congestion is rarely found. Even when it does occur, as in bridge-caissons, where the surrounding air is very much condensed, the cerebral effects are almost nothing, the principal nervous symptoms resulting from the effects on the spinal cord. This immunity is ascribed to the expulsion of the cerebro-spinal fluid simultaneously with the entrance of the blood, so that the volume of the brain suffers no alteration. On the ground of this same immunity, and also for other reasons, the author denies the connection of cerebral congestion with certain morbid symptoms which have been ascribed to this cause, such as delirium, etc.; attributing these rather to a condition of anæmia of the brain. In another condition, which has always been recognized as one of cerebral anæmia, namely epilepsy, he considers the symptoms as dependent upon deficient heart-power and not upon vaso-motor spasm. The latter cause, he argues, is neither sudden nor complete enough to account for the phenomena of an epileptic attack. In support of his own view he urges that by direct observation he has ascertained failure of the heart's action at the onset of an attack, and that, moreover, the symptoms in the two cases are alike, the only difference being in the immediate exciting cause. This same explanation also holds for the convulsions which are the expression of an extreme anæmia of nervous substance. These convulsions act beneficially by driving the blood from the extremities toward the heart, and thus stimulating it to renewed contraction. The stage of coma is dependent upon the extreme exhaustion of the nerve-centers after an attack of convulsions. Angina pectoris, another disease ascribed to vaso-motor spasm, is considered by Moxon to spring from two causes, being due in one set of cases to a tenderness of the vessels from the effects of over-straining (the result of heightened blood pressure), and in another set of cases to the inclusion of a cardiac nerve in the inflammatory processes going on in an artery. ═══ François-Franck, describing the contributions to our knowledge of the cerebral circulation made by Mosso and more recently by Gley, agrees with the former [and differs with Moxon] in his statement that room for the access of arterial blood to the brain is effected by the simultaneous contraction of the veins, instead of by the displacement of the cerebro-spinal fluid. The anæmia of the brain which occurs during deep sleep is rather the accompaniment than the cause of this condition; and under the influence of dreams or of external impressions it may give place to a transitory hyperæmia. Hyperæmia of the brain also occurs under the stimulus of mental effort; but, while Mosso attributes this phenomenon to a passive dilatation of the cerebral vessels, caused by a peripheral vaso-constriction in other parts of the body, François-Franck attributes it to an active dilatation, such as takes place in a secreting gland. [Moxon's studies are deserving of careful consideration, and in general seem to be pretty well substantiated. But, in accepting the old theory of the action of the cerebro-spinal fluid in compensating for circulatory changes of volume in the brain, he appears to have drawn his support rather from theory than from experiment. We should be much rather inclined to agree with Mosso, that the mechanism by which the cerebral volume is maintained at a constant amount is constituted by the inverse relation existing between the arteries and the veins. This theory was first enunciated by Cappie, was adopted by Mosso, and was proved by the latter in experiments on a subject affected with spina bifida and others determining the pressure in the longitudinal sinus, as well as by what appear to us the most satisfactory theoretical considerations.]

29. In the discussion on the *mechanism by which the heart's action is regulated*, the chief part was taken by Gaskell. He pointed out the dependence of the ventricular contraction upon an impulse sent from the ganglia of the sinuses and auricles. The ventricular contraction follows the rhythm of the auricular contraction, and any agents producing changes in the latter will cause corresponding alterations in the former. On the other hand, agents which act upon the ventricle alone have no influence over the auricular rhythm, and, furthermore, they can never cause a systole of the ventricles to take place independently of auricular impulse. This is shown by the fact that there are no agents which will make the ventricles contract faster than the auricles, and, moreover, if the ventricular systole may be made less frequent than the auricular, it yet bears a fixed relation to the latter, so that one contraction of the one takes place for every two or three of the other. This merely shows that agents which diminish the frequency of the ventricular systole do so by diminishing the excitability of the muscular fibers, so that they respond only to every second or third impulse sent from the auricles. A second fact which Gaskell brought forward was that stimulation of the pneumogastric caused a primary decrease, followed by a great secondary increase, in the contractile force of the heart, and this quite independent of any changes effected in the rhythm of contraction. This effect he ascribes to the presence of trophic fibers in this nerve. ═══ Kronecker supposed that this so-called trophic action was accomplished by a change in the position of the nutritive material contained in the cardiac substance, by which this material was brought into contact with fibers requiring further nourishment.

30. Zuckerkandl gives a case of *anomaly of the lingual artery* in which it was deficient on the left side, the right-hand vessel supplying both sides of the tongue. The anomaly, which might be important from a surgical stand-point, was evidently due to an enlargement of the anastomotic branch between the two linguals at the expense of that portion of the left lingual which lay between its origin and the point where the anastomotic branch joined it. The author has collected all the cases of anomalies of this artery which he can find. We append his list, as there is more or less surgical interest attaching to each of the cases. Krause says that the artery is rarely wanting, although there is no record of the proportion of cases in which this defect occurs. Sauth observed a case in which the artery was very small and supplied only the base of the tongue. Gruber has seen the vessel arising by a common head with the facial [according to Gray, this anomaly is not very rare], and passing above the hyoid bone at a point two ctm. above the normal situation. In Hyrtl's case the artery passed forward between the mylo-hyoid muscle and the anterior belly of the digastric, and did not enter the tongue till it had reached a point near the chin. Zuckerkandl himself has seen four forms of anomaly in course and distribution. In the first, the vessel passed external to the hyo-glossus muscle for its whole course; in the second, it did not pass beneath the hyoglossus till it had reached the lingual triangle [the triangle formed by the two bellies of the digastric and the hypoglossal nerve]; in the third, it passed beneath the hyo-glossus at the free border of the mylo-hyoid muscle. The fourth form of anomaly was that in which the artery was abbreviated at some point in its course, and its place supplied by neighboring vessels.

32. Fenwick presented a paper upon *the inter-communication of veins*, showing that the arrangement of the connecting branches and the disposition of the valves were such as to produce a flow of blood always in one direction. The principal instances which he cited were the connections (1) between the veins of the anterior surface of the neck and trunk and the femoral, axillary, and subclavian veins; (2) between the femoral and axillary by long longitudinal veins of the trunk, the valves in this case being so disposed that the blood always passes from the extremities to the trunk; (3) between the superficial and deep epigastric, and the internal mammary and deep epigastric, the blood in all cases tending to flow into the last-named vessel; (4) between the internal mammary and azygos veins, by means of the intercostal vessels; (5) between the deep epigastric and the portal and vesical veins.

34. Lesshaft maintains, as the result of a very extended series of observations, the *vertical direction of the stomach* in the abdominal cavity, the pylorus being found on a line drawn vertically downward from the right border of the sternum. The organ may, however, be slightly displaced by gaseous accumulation. He also holds that in the process of digestion the mass of food is constantly moving in two opposite directions, the peripheral portion passing along the stomach walls from the fundus to the pylorus, where it joins the central core of the mass, which passes back to the pylorus. [The analogy with convection currents in heated liquids seems quite striking.] Lesshaft thinks that it is to the impulse of this central column of food against the fundus that the marked development of the latter in adult life is due. [Few authors agree with Lesshaft in ascribing a vertical position to the stomach. In the meeting at which he promulgated his ideas, they met with considerable opposition from Holden, Thompson, and others.]

37. Dr. Brunton's description of *the minute anatomy of the kidney*, while very clear and satisfactory, presents nothing that can not be gathered from the ordinary histological text-books.

39. Rein regards *the development of the mammary gland* as taking place in the following manner: 1. There is first a "tubercular" stage, in which a deposit of epithelial cells is formed upon the surface of the embryo by a localized overgrowth of the cylindrical cells of the epidermis. 2. Next a "lenticular" stage is observed, in which this accumulation of cells begins to project inward into the substance of the cutis. At this time a "nipple-zone" is formed by an accumulation of the embryonic cells of the cutis about the epithelial deposit. 3. A "conical" stage follows, in which the epithelial mass projects still farther into the substance of the cutis, and assumes a conical shape. 4. Further development of the epithelial mass takes place, and its internal extremity becomes club-shaped (stage of "clubbing"). 5. The mass buds (stage of "budding"), forming solid plugs extending in different directions, and at the same time a "stroma-zone" is formed by the connective-tissue cells lying beneath the nipple-zone. 6. The primary deposit (at the surface) now degenerates, and the secondary formations become still further differentiated, the plugs being hollowed out and developing subsidiary buds, which constitute the acini of the gland. The stroma-zone becomes the connective-tissue framework of the mamma. [Rein follows the prevalent theory of mammary development. But some, notably Creighton, hold to an entirely different mode of formation. According to the latter author, the gland, so far from arising from the epiblast, or epidermic layer of the embryo, springs from the mesoblast, and is thus essentially a connective-tissue product. Moreover, instead of its arising at one point and developing in different directions from this point, Creighton holds that it starts from a number of independent centers, the growths from which finally become continuous and form a single organ. An account of his theory is given by Porter and Wendt in Satterthwaite's "Manual of Histology."]

41. Mucci observed that, if in performing *electrolysis* two needles connected by wire were inserted between the two needles acting as the positive and negative poles, a current took place between the elements of the former pair, opposite in direction to the main current between the poles themselves. Capparelli shows that this is due, not to the production of a new, induced current, but to the passage of the main current through the central pair, which offers a path of less resistance than the surrounding fluid does. When the experimental conditions were so altered that the passage of the main current through the central pair was rendered less easy than its passage through the surrounding liquid, no electrolytic changes occurred at the interpolar apparatus.

42. Letourneau conceived the idea of effecting *reduction of temperature by electrization*, having observed that the passage of a constant current through the head caused pallor of the skin, anæmia of the brain (as proved by a tendency to sleep), and contraction of the retinal vessels. In some experiments which he made in support of this idea, the temperature, both cutaneous and intra-cranial, was lowered by this means. This result, however, was not constant, and this inconstancy the author attributes to a variation in the numerous obscure conditions upon which the maintenance of cerebral temperature depends. [Letourneau's experiments are too few to prove his point, even if they were not contradictory. In all such observations there are many sources of error, and prominent among these are the spontaneous variations of cephalic temperature, to the existence of which Lombard has called special attention. Nevertheless, the possible therapeutic importance of Letourneau's theory demands renewed investigation in its behalf; and it would be well if observations were to be conducted on parts of the body where the conditions affecting the temperature are less complicated and better understood.]

43. Miller, in discussing the *electric currents produced in the mouth*, shows that they may be caused by the contact of acid fluids with different sorts of metallic fillings. Thus, a galvanic current may take place between two different points of a homogeneous plate, if the latter is of unequal thickness at these points. Such currents, however, do not pass through the teeth themselves, and hence can do no harm. It is different when the plate is composed of two metals, or of several layers of the same metal. The currents generated in this class of fillings by contact with acid fluids were shown by direct experiment to be injurious to the teeth. The dentine is not itself a good conductor of electricity, but may give passage to a current by means of the fluid contained in the minute tubules. This was shown by a variety of ingenious experiments.

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Miscellany.

Army Intelligence.—*Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from November 14, 1881, to December 13, 1881.*—Murray, Robert, Colonel and Surgeon. Medical Director, Military Division of the Missouri. The leave of absence granted him in S. O. 100, October 5, 1881, Military Division of the Missouri, extended two months. S. O. 272, A. G. O., December 2, 1881. ═══ Summers, John E., Lieutenant-Colonel and Surgeon. Medical Director of the Department. Granted leave of absence for twenty-five days. S. O. 123, Department of the Platte, December 1, 1881. ═══ McKee, J. C., Major and Surgeon. The extension of his leave of absence on surgeon's certificate of disability granted him in S. O. 189, August 18, 1881, from A. G. O., is further extended six months on surgeon's certificate of disability. S. O. 262, A. G. O., November 19, 1881. ==== Wright, J. P., Major and Surgeon. The leave of absence granted him in S. O. 229, November 8, 1881, Department of the Missouri, extended twenty days on surgeon's certificate of disability. S. O. 123, Military Division of the Missouri, December 2, 1881. ==== McClellan, Ely, Major and Surgeon. Having reported in person at these Headquarters, will proceed to Fort McHenry, Maryland, and report to the commanding officer for duty. S. O. 204, Department of the East, November 17, 1881. ==== Carvallo, C., Captain and Assistant Surgeon. The leave of absence on surgeon's certificate of disability granted him in S. O. 108, October 24, 1881, Department of the Platte, is extended five months on surgeon's certificate of disability. S. O. 256, A. G. O., November 12, 1881. ==== Lauderdale, J. V., Captain and Assistant Surgeon. On discontinuance of McPherson Barracks, Atlanta, Ga., assigned to duty at Jackson Barracks, Louisiana. To remain at McPherson Barracks until medical property for which he is responsible is disposed of. S. O. 124, Department of the South, November 10, 1881. ==== Byrne, C. B., Captain and Assistant Surgeon. Temporarily at McPherson Barracks, assigned to duty at Fort Barrancas, Florida. S. O. 124, C. S., Department of the South. ==== Paulding, H. O., Captain and Assistant Surgeon. Having reported at these Headquarters for S. O. 240, C. S., A. G. O., will report in person to the commanding officer, Fort Laramie, Washington Territory, for duty. S. O. 118, Department of the Platte, November 19, 1881. ==== Corbusier, William H., Captain and Assistant Surgeon. Granted leave of absence for four months. S. O. 266, A. G. O., November 25, 1881. ==== Cunningham, T. A., Captain and Assistant Surgeon. Relieved from duty at Jackson Barracks, and assigned to duty at Mount Vernon Barracks, Alabama. S. O. 124, C. S., Department of the South. ==== Perley, H. O., Captain and Assistant Surgeon. At the expiration of his present leave of absence to report in person to the commanding general, Department of the East, for assignment to duty. S. O. 274, A. G. O., December 5, 1881. ==== Davis, William B., First Lieutenant and Assistant Surgeon. Granted leave of absence for four months. S. O. 269, A. G. O., November 29, 1881. ==== Gorgas, W. C., First Lieutenant and Assistant Surgeon. Granted leave of absence for one month, with permission to apply for an extension of one month. S. O. 150, Department of Texas, December 3, 1881. ==== Strong, N., First Lieutenant and Assistant Surgeon. Relieved from duty at Fort Douglas, Utah Territory, and assigned to duty as Post Surgeon at Fort Cameron, Utah. S. O. 121, Department of the Platte, November 26, 1881. ==== Taylor, A. W., First Lieutenant and Assistant Surgeon. Assigned to duty at Fort Supply, Indian Territory. S. O. 246, Department of the Missouri, November 29, 1881. ==== Carter, E. C., First Lieutenant and Assistant Surgeon. Assigned to duty at Angel Island, California. S. O. 203, Military Division of the Pacific and Department of California, November 22, 1881. ==== Raymond, Henry I., First Lieutenant and Assistant Surgeon. Assigned to duty at Alcatraz Island, California. S. O. 203, Military Division of the Pacific and Department of California, November 22, 1881. ==== Johnson, Richard W., First Lieutenant and Assistant Surgeon (recently appointed). To report by letter to the commanding general, Department of Dakota, for assignment to duty. S. O. 272, C. S., A. G. O. ==== Coues, Elliott, Captain and Assistant Surgeon. His resignation accepted by the President, to take effect this date. S. O.2 60, A. G. O., November 17, 1881.

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THE SURGICAL ASPECTS OF GYNÆCOLOGY.

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With the rapid development of gynæcology as a specialty there has arisen a species of opposition to that branch of practice, which assumes the form of an implied protest against surgical and mechanical interference in the treatment of diseases of women. Practitioners eminent in other departments of medicine, and even in surgery, lament the frequency with which operations are performed by gynæcologists, and seem to regret as a misfortune the employment of the very means of cure that distinguish the practice of to-day from that of the past. There is, in short, a lack of faith among certain members of the profession in the practice of modern gynæcology; and there is a prevalent opinion that what are called milder measures would often accomplish more safely the same results for which the aid of surgery is invoked. The inference is that those who from opportunity or inclination devote a large share of their time to diseases of women are in some special danger of doing too much surgery, or of not doing it well.

It may be worth while, therefore, to inquire briefly into the causes of this scepticism, and to ascertain if possible whether there is really any good reason to fear that gynæcologists, as a rule, do resort to surgery to the neglect of other and better methods of treatment.

One reason for the scepticism referred to will be found, I think, in the fact that the whole science of gynæcology, together with its practice, is comparatively new, and that there is a want of thorough familiarity with it on the part of many who are otherwise well informed. To appreciate modern gynæcology, not only must much be learned, but much must be forgotten. Hence it is that the older part of the practice—the mild, the safe, the palliative, the strictly medical, means of treatment—is well known, while the essentially modern part, which has so much to do with surgery, is little understood by those who have not given the subject special attention.

It is fair to assume that those who practice this or any other specialty are the best judges of the means of cure to be employed in their own department, as it is certainly to their interest to do better for their patients than the general practitioner can do. The insinuation that operations are advised or encouraged from mercenary motives is unworthy of notice, except to observe in passing that, granting the existence of such base motives, it would nevertheless be bad policy to substitute a radical cure for a prolonged course of treatment, which in the long run (often very long indeed) must prove infinitely the more profitable to the practitioner.

It is possible that the youthful or inexperienced practitioner may be tempted to resort too early or too often to the knife, but this danger pertains to general surgery as well. Operations have undoubtedly a fascination for the average student; but neither students nor the youngest members of the profession have many opportunities for the exercise of practical surgery, however zealous they may be. Nearly all who practice gynæcology have had years of experience, either in private or in hospital practice. The wider their experience the more competent they are to practice the specialty in question. Some eminent gynæcologists never abandon general practice; and many who are best known to the profession have worked their way laboriously through all the older and more conventional methods of treating the diseases of women, and feel that they stand at last on higher and better ground. Men who have thus gained their experience are not apt to be rash or careless in resorting to surgery, and I think it a safe assumption that there is no more malpractice in gynæcology than in any other department of medicine. It is difficult in this department, as it is in obstetrics, to ascertain facts and observe results, even in hospital cases; but those of us who see much of diseases of women, either in private or in hospital practice, are only too familiar with cases that have been subjected in vain to years of treatment—not always very mild, either—intended to accomplish gradually what might have been the work of a few weeks or months had the necessity for surgical treatment been recognized at the beginning. That many such cases are permanently cured by a resort to surgery, even at the eleventh hour, is matter of record and beyond question. It is equally true that many patients who might be cured delay too long, and must suffer for the rest of their lives the consequences of that delay; while a certain number actually perish for want of timely help. Only those accustomed to see and compare many cases of ovariotomy can appreciate the number of lives that are lost, even to-day, by postponing the inevitable operation to the very latest moment. For this the medical adviser is sometimes responsible. The idea of an operation is so appalling to the laity that even a hint in opposition to it is eagerly seized upon and construed into a pretext for waiting a little longer. Dr. Van Buren says in his "Lectures on Diseases of the Rectum": "There are individuals to be found in every community of any size who make a living by ministering to the fears of the timorous with remedies 'better and safer than the use of the knife.'" The results of neglect and delay are more palpable in cases involving the graver operations, but in the aggregate I believe there is more harm done by procrastination in the less urgent class of cases. Cases of neglected epithelioma of the cervix uteri are not at all rare. Cases of fibroid or other growths causing an exhausting hæmorrhage, prolonged perhaps through years, are met with very frequently, and cured by surgical means.

In a somewhat extensive experience in gynæcology during the past fourteen years I have seldom seen women who had suffered at the hands of surgeons, though some errors must occur in every branch of practice. On the other hand, the spectacle of women who have suffered for want of judicious surgical treatment has been very common. I will mention the following case, taken from a large number of similar ones, in illustration:

In December, 1878, I was consulted by a married lady, forty years of age, on account of menorrhagia, from which she had suffered since her last confinement, eight years previously. She was a woman of good constitution and originally of fine physique, but at the time I saw her was very thin, excessively anæmic, and barely able to walk from room to room without fainting. Her menstrual period lasted usually two weeks, and was excessive in quantity. In the intervals there was a profuse, offensive, and sometimes sanious discharge. On questioning the patient I was surprised to find that, though she had taken a great quantity of medicine, and had been under treatment nearly all the time, no examination of the uterus had been made, though she had herself suggested it. I at once made a thorough investigation, and discovered an extensive bilateral laceration of the cervix uteri, causing eversion of the canal of the cervix, a large, congested, and retroverted uterus, and abundant fungous growths in the uterine canal. I suggested the removal of the growths by the curette, and subsequent operation for the removal of the diseased cervical tissue and the cure of the laceration. I advised immediate operation, fearing that a few months more would place the patient beyond the reach of aid. By the advice of friends a delay of about two months occurred, during which time the lady grew rapidly worse, until her appearance was strikingly suggestive of malignant disease. I was then asked to operate. Making a guarded prognosis, I had the patient placed under the influence of ether and curetted thoroughly. A week later I performed the usual operation on the lacerated cervix, and obtained perfect union. The next menstruation was excessive in quantity, but did not last so long as the previous one. The result was that after three months the patient began to improve. The menorrhagia gradually ceased. In nine months menstruation had become perfectly normal, the patient had recovered some of her former color, and had gained twenty pounds in weight. Eighteen months after the operation she was in absolutely perfect health, stout, strong, and "as well as she ever was in her life."

I have omitted the details of this case, which included most careful dietetic management and constant watching during convalescence. I describe it as a typical case. All similar cases are not so striking, though a large number are equally satisfactory.

A year later I was called to see a lady of fifty years of age, the mother of several children, who for twelve years had suffered so much from procidentia uteri that she had been unable to walk out of doors, and even in the house had difficulty in going up and down stairs. The condition of the bowels gave her great annoyance, being obstinately constipated. She also suffered much from an irritable bladder, and, though her general health was good, her life was rendered utterly miserable.

I found, on examination, a lacerated perinæum, with prolapse of the rectal and vesical walls of the vagina, and descent of the uterus. After much opposition on the part of friends and advisers, who succeeded in exciting an absolute terror of any operation, she consented to place herself entirely under my care. I made a favorable prognosis, and after some preliminary treatment I restored the lacerated perinæum by an operation, including the redundant rectal wall of the vagina in the new perinæum. The result was perfect. There has never been the slightest tendency to falling of the uterus or protrusion of the vagina since the operation. The bowels in time regained their power and activity, and the patient was able in a few months to walk four or five miles without inconvenience. She is to-day in perfect health, and walks long distances every day for exercise.

This lady is wealthy, and had been for years under medical care. An examination by touch had once been made, when she was assured that there was no disorder that medicine would not reach.

The latter case is not an exceptional one. Such cases and such results are very common. It would be denying the evidence of the senses in cases like these to doubt that the cure was due to the operation. The patient whose case was first described owes her life to surgery. The last one owes to it almost all the enjoyment life affords.

The two cases I have sketched thus briefly had been treated on the expectant plan. One other case of laceration of the cervix will serve to illustrate the futility of ordinary routine treatment where surgical aid is imperatively demanded.

A lady thirty-five years of age, the mother of three children, the youngest four years old, had suffered for four years from menorrhagia, bearing-down pains, and general debility. She had lost in weight, and was exceedingly anæmic and languid. She had resorted to medical advice early, and had been told that she had ulceration of the neck of the uterus. For that she was treated for a time by such remedies as potassa fusa, nitrate of silver, nitric and chromic acids, and the actual cautery. Two large raw surfaces—the so-called ulcers—were apparent on examination. The slightest touch caused them to bleed, and they might easily have been mistaken for a malignant growth. It was possible, however, to demonstrate the condition to be one of laceration by forcibly approximating the everted lips. An operation was done, perfect union was secured, and after some months the cervix regained its normal size and appearance. Menstruation gradually became more natural, the woman improved rapidly in general health, and a year after the operation was entirely well.

Cases like this are very common, both in private and in hospital practice. The question that always occurs to me regarding them is, If surgical aid is rejected, what do the opponents of surgery propose in its place? The possibilities of medical treatment having been exhausted, is the patient to be simply warned against what are called dangerous operations, and left to her fate? Practically it is to be feared this is sometimes done, with the best motives, simply because the attendant and adviser does not appreciate the necessity for active measures.

The truth is gradually making itself plain, that a large proportion of the women who seek relief from diseases peculiar to their sex need, as a part at least of their treatment, some surgical or mechanical interference, while for many cases surgery holds out the only hope. We must rely upon surgery in ovarian tumors, in many fibroid and polypoid growths, in lacerations of the perinæum, lacerations of the cervix, prolapse of the uterus, in all the fistulæ of the vaginal walls, in certain diseases of the bladder, and in almost all forms of malignant growth.

When we remember how much has been accomplished by surgery in diseases of women, and how little by means strictly medical, it would seem impossible to overestimate the importance of surgery in this department, and superfluous to offer any plea or argument in its behalf. Hardly anything new has been developed in gynæcology that has not to do with surgery. The medical and the expectant methods of treatment have been tried for centuries past in very much the same way as they are employed to-day. The surgical methods are of recent origin. Untold thousands of women perished from ovarian tumors until it was demonstrated, after bitter opposition, that a very large majority of such sufferers could be saved by a surgical operation. Yet the aggregate suffering and loss of life from less formidable diseases than ovarian tumors must have been infinitely greater, because of their greater frequency.

I have spoken of mechanical interference as often necessary. By that I mean in general the correction of the various displacements of the uterus and the use of pessaries as a means of curing or relieving such dislocations. I mention the subject in this connection because I find that those who disapprove of surgery generally condemn also all mechanical devices for managing the displacements. Nothing is more evident to the gynæcologist than the good which is accomplished by the careful use of pessaries. It would be a waste of time to cite cases in support of this statement. They are abundant even in the out-door clinics of the Woman's Hospital. The proper adjustment of a pessary in a suitable case enables the patient to do her daily work with comfort, and practically makes all the difference between health and sickness. Among women of the working classes, who earn their living by hard work, the beneficial effects of mechanical support are strikingly apparent. No one can practice gynæcology successfully who is not a thorough master of the art of correcting displacements and applying artificial support for their relief or cure. This branch of practice affords scope for the exercise of much ingenuity, and demands the possession of a fair amount of mechanical skill. Much of the prejudice that exists against the use of pessaries arises from the harm which is done when they are clumsily employed, or employed in cases where they ought to be carefully avoided. I would ask again, of those who disapprove of this means of cure, What substitute is offered in its place? Displacements do exist, however they may be ignored, and they demand the use of every known means at our command for their relief.

In conclusion, I think it may fairly be claimed that modern gynæcology owes its brilliant success almost entirely to the fact that it has been brought within the domain of surgery. To essay to practice this branch of medicine independently of surgical and mechanical resources is to do the patient a gross injustice. To advise in such matters without a knowledge of what can be done by surgery is also unfair to the patient. Not by any means that *all* cases come within the limits of surgery, or that all that do so can be cured, but that surgery holds out a prospect of relief to so many, that to withhold or discountenance its aid is to fall far short of the duty of a wise and conscientious physician. On the younger members of the profession it is especially incumbent to inform themselves without prejudice of what has been done in this department of surgery within the past twenty-five years, so that, when called upon for an opinion, they may be able to advise intelligently, and to give their patients the utmost benefit of every means which experience has proved to be of value.

CONCLUSIONS.

1. There appears to be no good reason to suppose that those who practice gynæcology are less competent than others to judge of the necessity, in any given case, of resorting to surgery.

2. Those who deprecate the surgical resources of gynæcology are not those whose studies or opportunities entitle their opinions, on this particular subject, to great weight.

3. The foundation of modern gynæcology is surgery—modern surgery, with all its improvements, and with all the advantages it derives from the antiseptic system. The triumphs of gynæcology have been gained almost entirely in the field of surgery.

4. To those who still doubt the value of surgical procedures which seem to the "inner circle" amply proven, I would reply by another quotation from Dr. Van Buren, who says, with exquisite courtesy, speaking of an operation about the value of which he has no doubt, but which is subject to the opposition of inexperience: "I can not help thinking that those who speak unfavorably of this measure may not have fully tried it."

ON SEASICKNESS.

By JAMES REGINALD STOCKER, M. B. Lond., M. R. C. P.,
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"Our remedies oft in ourselves do lie."
"*All's Well That Ends Well.*"

In drawing the attention of the profession, and it may be of the public, to this subject, I may state that I have been somewhat perplexed as to the most suitable and convenient means of doing so. The matter, in whatever way it may be treated, whether in a professional, a scientific, or even a popular way, is one of such common interest, people are so bewildered and distracted by the variety of remedies offered to their notice, and so much has been written about it in the daily and weekly journals on both sides of the Atlantic, that I might have been excused had I sought for the publication of my views in some popular journal or magazine. It is, at the same time, of whatever general interest and importance it may be to the public, one the nature of which must eventually be submitted to and determined by a scientific tribunal, and it is this that induces me to bring my own particular views forward at the present time. Some question also has arisen in my own mind as to whether the quotations I have made were quite as appropriate in a professional as in a popular publication. I trust, however, in whatever sense they may be read, they may prove instructive.

But, before proceeding to make any remarks upon the subject myself, I propose briefly to refer to certain statements that have been made by others. Some ten years ago, Professor Barker, of New York, wrote an able pamphlet on seasickness, which is practically an enlargement of a paper published by him in the "New York Medical Journal," November, 1868. In this pamphlet he says: "The belief is very general, both in and out of the profession, that the medical art is powerless for the mitigation, relief, or cure of this malady. It is true that there are no specific drugs which will cure or even prevent seasickness, but I believe that every physician ought to be competent to give such good, sensible advice as will greatly contribute to diminish the tendency to this malady, and to mitigate and relieve the suffering and evil resulting from it." He then recounts the opportunities he has had of studying the malady, and adds that he is not sure it "can be called a disease in the proper sense of the word, for the phenomena constituting seasickness are purely physical." What he means by this is not quite clear, unless for "physical" we read "functional." Further on he discusses shortly his own views of the cause of seasickness, and remarks that "no sensible physician would therefore expect to cure seasickness by medication addressed to the stomach, or even by drugs which are supposed to act directly on the brain and its functions. The horizontal position, which to a certain degree modifies this disturbance of function, is the only approximation to a cure." In cases of prolonged seasickness, constant nausea, great nervous depression and sleeplessness, he recommends the use of potassic bromide in scruple doses, three times a day. Dr. Barker has, in my opinion, written a useful little book, for one reason, if for no other, viz., that he has vaunted no particular remedy.

Some time after the publication of Dr. Barker's views of seasickness, M. Giraldès wrote a letter to the "Times," lauding the use of chloral hydrate as a preventive of seasickness, which attracted considerable attention at the time, and has found a popular exponent of late in the shape of a patent or proprietary medicine. This letter was published also in the French medical periodicals at the time, the "Union Médicale" and the "Journal de Thérapeutique," November, 1874. Twenty grains of chloral were taken before going on board, and were to be repeated during the passage (the English Channel) if necessary.

A more recent writer, Dr. Wilson, of Sandown, Isle of Wight, in a book published only last year—"The Ocean as a Health Resort," London, 1880—condemns the whole *posse comitatus* of drugs as useless. He says: "Ice bags to the spine, chloroform, chloral hydrate, prussic acid, and all the numberless remedies that have been proposed, have been weighed in the balance of experience and found wanting. Some of them," he admits, "may relieve for a time, but they interfere with the natural course of the complaint, and do more harm than good in the long run." A few lines further on he says: "When the stomach is much exhausted by sickness, small quantities of stimulants, especially in an effervescing form, will be found of great service. The best stimulants to take are brandy in small quantities, well diluted with soda water, or dry champagne either alone or mixed with soda water. When ice can be obtained, it may with very great advantage be either taken with the fluids, or allowed to dissolve in the mouth in small quantities at a time."

The Rev. Dr. Cuyler, on the other hand, in a letter published in the "New York Evangelist," April 21, 1881, says: "Thanks to a free use every morning of Saratoga water and a careful diet, I have not been seasick. The traditional nonsense about warding off this dreaded malady by a liberal use of champagne or toddy ought to be exploded. In this case, too, 'wine is a mocker, and whoso is deceived thereby is not wise.' A good aperient, light digestible food, and fresh air are worth more than all the alcoholic potations ever concocted."

But the great modern exponent of seasickness is an American physician practicing in New York. His experience truly is great, for he appears to have been a great sufferer himself. It is curious to notice, in passing, how Dr. Beard claims to be an authority because he *is* seasick, and Dr. Barker because he *is not.* It is also interesting to observe how a system of treatment which seems almost worthy to be considered as belonging, *par excellence*, to the old school, has originated in a country which may fairly be called the "home of the homœopaths," and has been eagerly adopted, and, sometimes to their sorrow, put into practice by the public. His points are briefly these: That bromide of sodium is a specific for seasickness, that it must be used before the commencement of the voyage, and that it must be taken largely, indeed, excessively. I have examined his treatise in a spirit of careful and candid inquiry, and I must say I can not but condemn the practice. I have no hesitation in saying that, although Dr. Beard has been consistent and emphatic enough throughout his book in advocating the use of excessive doses of the bromide, and the necessity of commencing the treatment before going on board ship, he has, not *un-ostrich-like*, most effectually and conclusively contradicted himself by a note he has innocently and ingenuously, and apparently for the purpose of confirming his theory, added to his work. This note consists principally of a letter from Dr. Hutchinson, of Providence, R. I., relating to a "combination which proved so remarkably successful. Two gentlemen, one lady, and one child were terrible sufferers with seasickness—the lady being at times delirious from functional cerebral excitement. Into an ordinary tumbler, half full of water, I put ten grains of bromide of sodium, with one tenth grain of powdered ipecac, sat down by the bedside, and gave a teaspoonful every ten minutes. Inside of an hour all vomiting and nausea had disappeared, and the lady was asleep quietly. When she awoke, although the sea was the same as before, the sickness did not return, and she finished the voyage to Santiago de Cuba pleasantly. The same effect followed in the other cases, and as we were out almost two months, cruising around the island, I had an excellent opportunity to test this remedy. In no one instance did it fail. . . . With, I presume, more experience at sea than usually falls to the lot of physicians, this combination is the first that has proved of the smallest benefit in this contemptible disease."

I would call attention, in the first place, to the grammatical construction of this last sentence, and, in the second, to the complete refutation the letter gives to Dr. Beard's statements. It is needless to descant any further on these last two plans of treatment, except to say that the contrast between them is simply ludicrous. It is chiefly with the object of exposing the inconsistency of these and other like statements, and of calling public attention to the fact, that I venture to quote them. In addition to the popular and elegant preparations introduced of late for the relief or cure of seasickness, we may soon expect to see another, culled from the fertile brains of Dr. Beard and Dr. Hutchinson combined, and called by some such fanciful name as the proprietor may delight in and consider attractive, which may perhaps be found exceedingly useful by those who possess those two invaluable assistants to the *vis medicatrix*, ignorance and faith.

I shall now proceed to relate my own views about seasickness, and would ask my readers to remember that hitherto I have been speaking of the treatment, about which I intend to make only a few remarks, based upon the results of my own experience and that of competent and trustworthy observers.

There are some diseases, the specific fevers for example, for which there is no cure, nor is it in the course of nature that there should be. But the system, having once encountered them, is, generally speaking, no longer liable to their attacks. The only security against such diseases is either to keep well out of their way, or, by submitting to them, to undergo what may be called a personal experience of them. There are also, it can not be denied, certain conditions of the body which render it more or less susceptible to the influence of the poisons that engender them. They depend upon age, sex, condition, occupation, temperament, habits, and the like. These conditions, when favorable, appear rather to establish a kind of tolerance than to confer complete immunity. When we look around us, we can not fail to perceive that some individuals appear at times to possess this property; their systems are either acclimatized or accustomed, or from other causes are not susceptible, to them; at any rate, they are free.

We observe a similar kind of tolerance sometimes, indeed generally, acquired by the system with regard to the special senses, particularly in certain occupations. So it is with regard to seasickness. Can we wonder that in this case, too, the system should sometimes become inured or accustomed to the sensations that produce it, and no longer amenable to their influence? Can we be surprised that in certain cases, or at certain times, men should seem to be endowed with the faculty of accommodating themselves to the singular sensations that occur on board ship?

Having said so much by way of preface to my remarks, I may now proceed to discuss the nature or the pathology of seasickness. The pneumogastric nerve is always an interesting nerve to study; in the present inquiry it is an important one: it is the key to the explanation of seasickness! It is the principal nerve of organic life: it governs the heart, the lungs, and the stomach and intestines, as well as other more remote but yet important parts. It may seem curious, but it is nevertheless a fact, that the stomach sympathizes most with the senses—the heart and lungs with the emotions, the ideas, and the intellect. If a powerful stimulus acts upon the mind, it affects principally the heart and lungs; if upon the senses, the stomach is affected. The same may be said of sedatives or soothing influences.

The pneumogastric nerve sympathizes, then, with the senses and the intellect, and plays an active part in that expression of disgust which results in vomiting. We see this thing occur as a consequence of an unpleasant impression upon any one of the special senses—the sense of taste, of smell, sight, hearing, and touch. Stimulation of the nerve, in moderation, favors digestion and the various other processes of organic life; in excess it irritates them. It directly occasions nausea, dyspepsia, flatulence, vomiting, etc.; and, indirectly, all the other sad effects of seasickness. The nervous centers, excited by the sensory impressions, become at last so irritable that the introduction of anything into the stomach is resented, and vomiting occurs; until sooner or later the nervous system is dominated by that potent influence for good or evil, the force of habit, and the body finally becomes accustomed to the new sensation.

I have spoken of a difference in the degree of stimulus: quantity. I will now allude to a difference in the kind: quality. There are some sensations that are pleasant and agreeable; others that are painful and disagreeable. It is not by any means always the case that the same sensations produce the same effect—i. e., of pleasure or of pain—either in the same or in different persons—"what is one man's food is another man's poison." In other words, tastes differ; not only in different persons, but also at different times. An odor, e. g., as of cooking, may be grateful at one time, ungrateful at another; a sound agreeable at one time, at another disagreeable. It is peculiarly so with regard to movement. One is sometimes pleasantly affected by a motion which at other times may be quite the reverse, and it always has a different effect upon some people from what it has upon others. I once met a man who said he had crossed the Atlantic eight times as a bachelor without being seasick; the ninth time he was married and had his wife with him; he was sick the whole way.

The consideration of the phenomena of seasickness has convinced me that the fifth sense, commonly called the "sense of touch," or "common sensation," is a compound sense. By its means we are able to recognize not only touch and its varieties, but also distance, form, size, weight, consistence, relation, and time, and sometimes even color and sound. "The capacity, therefore, of the hand," says Sir Charles Bell, "to ascertain the distance, size, weight, form, hardness or softness, roughness or smoothness, of objects, results from its having a compound function—from the sensibility of the proper organ of touch being combined with the consciousness of the motion of the arm, hand, and fingers."—("Bell on the Hand," 8th ed., London, 1877, page 156.)

Nor is feeling by any means the only sense that is compound in its character, for all the other senses are more or less of a complex nature. Bell, indeed, may have been mistaken in his views as to the "muscular sense" being a sense apart and distinct from the others, for it doubtless properly belongs to the various special senses with which the muscles concerned are connected, the muscular apparatus of the trunk and limbs enabling and assisting them to fulfill their functions just as much as the muscular appendages of the eye, the ear, the nose, and the tongue minister to them.

This, then, is one of the lessons that the study of seasickness teaches us. It teaches us an important physiological fact, that there is in us a sense which, without some such experience, we might perhaps be slow to recognize—the sense of passive motion. It may not indeed be so exalted a sense as others, nor so important, but it is certainly one which in seasickness deserves consideration. And after all it has its pleasant as well as its painful side, when used in moderation; it is the placid sensation that often lulls the child to sleep; it is that of the rocking-horse, the rocking-chair, horse exercise, vehicular motion of all kinds, passive movement of the body in all its forms and phases, only unpleasant, only disagreeable when used inopportunely or in excess.

There is another passage in Bell's work upon the hand (p. 148) that bears directly upon the matter we have in hand, though from another point of view; it is this: "The nurse will tell us that the infant lies composed in her arms while she carries it up stairs, but that it is agitated when she carries it down. If an infant be laid upon the arms and dangled up and down, its body and limbs will be at rest as it is raised, but, in descending, it will struggle and make efforts. Here is the indication of a sense, an innate feeling, of danger."

Considered in the light of later years, we may perhaps trace in this observation of Bell's an instance of one of the conditions of seasickness. The study of seasickness, as has been suggested, is a complicated study, and not so simple as some appear to think. Much light has been thrown upon the subject at various times and by different writers. Barker refers it to the "sudden and recurring changes of the relation of the fluids to the solids of the body, and the nervous disturbances which result from these changes. . . . The blood by its fluidity yields more readily to the influence of descent and less easily than the solids to the ascending impulse." The

"Lancet" in a leading article (Oct. 23, 1875) referred to Wollaston's theory of seasickness, which attributed the symptoms to "cerebral disturbance induced by the repeated mechanical congestion of the brain, which the repeated downward movement of the ship induces"; and showed how inefficient it was to meet the case. Ellis, of Bristol, in the same number, throws out a useful hint as to the necessity of learning to accustom one's self to the movements of the ship. Wilks and Marshall have pointed out the difference of the "pitching and tossing" or "forward" movement of a vessel from the "rolling" or "lateral" movement, and how much more exaggerated it is in one case than in the other, and how much more severe are its effects. Conditions which these and other observers refer to the falling weight of the viscera, I am inclined to attribute to a cause a little more remote, but produced partly by that agency. I believe that the feeling of nausea, etc., which ensues upon the falling of the vessel is the same as that due to the backward movement of the swing, or of any vehicle, the downward movement of an elevator, vertical or oblique, as well as in the dance and in the infant just referred to; and is brought about by the formation of a partial vacuum in the lung. To this cause I also attribute the condition known as *mal des montagnes*, which has been well described by M. Lortet, of Lyons ("Comptes Rendus de la Soc. des Sci.," 1869, 2, p. 707), who, by the by, ascribes it to the cooling of the body and the vitiation of the blood with carbonic acid. Dr. Macpherson ("British and Foreign Med.-Chir. Review," 1876, p, 2. 279) gives a good account of this and other observations on the same condition. He sums up the symptoms thus: Quickened breathing and pulse, and bleeding at the nose, etc., "violent headache, sleeplessness, loss of senses and of memory, mental depression, thirst, nausea, vomiting, loss of power in the limbs. All these symptoms," he says, "remit on rest, but return on renewed exertion. All are not affected alike. . . . The amount of suffering varies in the same person at different times. . . . Those who make the most exertion suffer most. Those who are on horseback suffer less than those on foot. The lower animals are affected as much as man."

We have in seasickness conditions almost precisely similar to these, with regard to the effect as well as to the cause: a certain rarefaction of the air within the chest; a partial vacuum produced, not indeed by the rarefaction of the atmosphere itself, but by the subsidence of the abdominal viscera when the vessel falls, and therefore felt more in the upright than in the horizontal position; and the continued movement of the body.

The first, i. e., the want of air, is the cause more particularly of that feeling of "goneness" we so often hear complained of. I have been in the habit of recommending my patients to take a deep breath whenever they feel that sinking at the pit of the stomach, having found it by experience to be an effectual, though not infallible, means of allaying the sensation, and to this I would refer the good effect of singing or of any rhythmic movements that may tend to relieve the mind or to regulate the breathing, as well as the advantage sometimes derived from weight or pressure applied to the stomach by elastic and other belts, or bandages. Only the other day a gentleman told me he had experienced considerable relief by facing the wind and bowing forward when the vessel pitched; so many and so various are the methods men resort to in order to accommodate themselves to the change, as I think, of the rarity of the air within the chest. The second, i. e., the movement, is the cause more especially of the irritable condition of the nervous system.

The secret of the one is its direct effect upon the pulmonic branches of the pneumogastric nerve, probably the result of a partial paralysis. We know that division of the pneumogastric causes vomiting; the nerve is said to exert an inhibitory effect upon the heart; it has the same effect upon the stomach. "The sensation of pain, oppression, irritation of the air passages, want of air, hunger, thirst, and satiety are dependent on this nerve. It has a regulating influence over the functions of deglutition, digestion, circulation, and respiration" (Marshall). It may, however, be due to stimulation of the pneumogastric, for the diminished resistance of the air, according to Liebig, leads to more active elastic contraction of the lung. The secret of the other is its indirect effect upon the same nerve, through the media of the nerves of feeling or common sensation, sometimes indeed through the agency of other senses, as, e. g., by the sight of undulating movements, and by other unpleasant sensations. In each case, practically, the cause is of an eccentric or peripheral character.

I have said that the study of seasickness is complicated; I may now say that I recognize these two factors in its production, viz.: Irritation of the nervous centers by the ceaseless movement and other disagreeable sensations; and the sickening sensation of "want of air." I did think that my views as to the existence of the sense of passive movement being demonstrated in the case of seasickness were somewhat original; I find them expressed, however, some fifty years ago, by Herbert Mayo; and essentially confirmed by physiological writers at the present day. They tell us that seasickness is a sensori-motor act (Carpenter, Marshall), and speak of common sensation as complex, consisting of the sense of touch, temperature, the muscular sense, hunger, thirst, satiety, want of breath, fatigue, exhaustion (Marshall); but it was Mayo who was the first to recognize the fact. The index of his original observations that he gives in the preface to his work on physiology contains the following passage: "Remarks upon impressions of direction and motion; of equilibrium; hypothesis maintained of the dependence of seasickness upon the sense of disturbed equilibrium." He explains it thus: "There is a feeling attending the sudden beginning or retardation or acceleration of motion, which is independent of the sense of contact excited on one or other of the aspects of the body, and of muscular effort. When one is in a state of equable motion, as when one lies upon the ground (there being then the earth's motion only to be taken into account), or in the perfectly smooth and uniform motion of a boat gliding down a river, we *feel* that we are at rest. Any sudden alteration of the quantity of motion in us we *feel* by the sense of motion. The existence of the same sense may be rendered evident in another manner. After traveling a short distance in a rough carriage (to the city, for instance, in an omnibus), when the carriage has stopped, and you have remained on your seat for a few seconds, if you rise suddenly, you feel, for an instant or two, as if the carriage were still in motion; this is the sense of motion *continuing after the external cause has ceased*, as the sensation produced by a flash of lightning remains in the eye longer than the light itself. It is not easy," he adds, "to say where this sense exists, whether in the muscles only, or in the joints and sinews and integuments, or in the whole frame together."

Another passage in the same work is well worth quoting here: "Nothing appears simpler or easier or more natural than maintaining our equilibrium in standing, walking, running, under common circumstances. Nor does anything appear more natural and easy than the rapid movements of the fingers of an accomplished musician playing on the piano. Both, however, are equally the results of long and at first difficult practice in the use of muscles under the guidance of more than one class of sensation. In maintaining our equilibrium we are principally assisted by the muscular sense. How much the maintenance of our equilibrium is the result of practiced sensation and muscular effort is shown by what happens on going to sea. It is long before the passenger acquires his sea legs. At first, as the ship moves, he can hardly keep his feet; the shifting lines of the vessel and surface of the water unsettle his visual stability; the different inclination of the planks he stands on, his muscular sense. In a short time he learns to disregard the shifting images and changing motions, or acquires facility in adapting himself (like one on horseback) to the different alteration of the line of direction in his frame."

Taking all these things into consideration, the exhausted condition of the air, the continual movement of the body, the concussion and congestion to which various organs in the body are subjected, the shaking up of the contents of the stomach, and all the unusual, unpleasant impressions that assail our other organs of special sense—the eye, the ear, the nose, and even the tongue and palate—and knowing that sickness sometimes results from any one of them, we may find it difficult rather to account for its occasional absence than to understand its frequent occurrence.

With regard to the symptoms I shall say nothing. They are tolerably familiar to most of us, and to relate them now would be to little purpose. As to the treatment, I think it lies in a nutshell. As I have said already, I propose merely to make a few general remarks upon it, not to discuss it at any length. If the views I have stated above are correct, the conclusions to be drawn therefrom are simple and obvious. Sedatives, both nervine and also stomachic (for they too will influence the terminal branches of the pneumogastric nerve), anodynes and anæsthetics, among which I include, of course, amyl nitrite, are good. So also are stimulants. Aperients are exceedingly useful. It is necessary, however, in saying this, to state that there are in this, as well as in most other complaints, certain stages or periods: the first, one of great nervous depression; the second, one of gastric and nervous irritability; the third, one of exhaustion. Things which are useful or harmless in one may be useless and even hurtful in another.

There are drugs which serve to diminish and even to deaden sensibility—some which serve to fortify and to strengthen it. Such drugs are no doubt of use, of much use, for the relief and prevention of seasickness; but that they are specifics I venture most directly to deny. A person's consciousness or his intellect may be so completely fuddled that he may not know what he is about; but to call that a cure is not, I venture to assert, calling things by their right names. The use of the bromides for this purpose is increasing daily, and I must say that I can not but condemn the practice of using them so indiscriminately and in such large quantities as has lately been recommended. In the "Medical Record" for July 2, 1881, is a report of a meeting of the American Neurological Association. Dr. W. A. Hammond, of New York, is reported to have said that "he had seen many cases in which acute mania had been produced with bromides, and he believed that there was a stage beyond which bromides could not be continued without producing mental aberration. The cumulative properties of the bromides should be studied more carefully than they had been. He had had four patients die while under the extensive use of bromides under his direction."

But, while I deny that there is any specific remedy or panacea for the disorder, I hasten to acknowledge that many of the conditions may be relieved by medicine. Seasickness, after all, is but a form of passive indigestion, the result of a functional neurosis in which the pneumogastric nerve is either excited or depressed. Like many other functional disorders, if anything is to be done at all for it in the way of medicine, it requires to be *treated*. One is sometimes surprised at the complete failure in some cases of a remedy which in others has proved of great service; and, conversely, one is sometimes charmed with the effect of a remedy on some which has failed completely with others. With regard, for instance, to the use of alkalies as stomachic sedatives, one seems sometimes to hit upon by chance, to distinguish intuitively, or rather, perhaps, to learn by experience, what particular drug to use in each individual case. The same may be said with regard to aperients, etc. Thus would I explain the differences and agreements in the opinions of writers who have given the results of their experience to the public.

One cure, indeed, there is, viz.: custom or habit. In the course of time it almost invariably asserts itself, and "use becomes a second nature." The sooner one can accustom or habituate one's self to the altered conditions of things, the sooner will one become a good sailor. The best means of doing so is to forget it, to banish it from one's memory by the substitution of gymnastic and other exercises, and by learning the art of balancing one's self. The more one is able to forget one's self, the more one's attention can be distracted from one's own condition and diverted to other things and other people, the less will one feel the disagreeable sensations. What people want on board ship is resolution, and, when the will is not sufficient and moral means have failed, the most effectual, though not by any means the most practicable, is to have recourse to force.

Captain Marryat was of this opinion, as the following passage from "Peter Simple" will conclusively show: "I admired the scenery of the Isle of Wight, looked with admiration at Alum Bay, was astonished at the Needle Rocks, and then felt so very ill that I went down below. What occurred for the next six days I can not tell. I thought that I should die every moment, and lay in my hammock or on the chest for the whole of that time, incapable of eating, drinking, or walking about. O'Brien came to me on the seventh morning, and said that if I did not exert myself I never should get well, that he was very fond of me, and had taken me under his protection, and, to prove his regard, he would do for me what he would not take the trouble to do for any other youngster in the ship, which was to give me a good basting, which was a sovereign remedy for seasickness. He suited the action to the word and drubbed me on the ribs without mercy, until I thought the breath was out of my body, and then he took a rope's end and thrashed me until I obeyed his orders to go on deck immediately. Before he came to me I could never have believed it possible that I could have obeyed him; but somehow or another I did contrive to crawl up the ladder to the main deck, where I sat down on the shot racks and cried bitterly. What would I have given to have been at home again! It was not my fault that I was the greatest fool in the family, yet how was I punished for it! If this was kindness from O'Brien, what had I to expect from those who were not partial to me? But, by degrees, I recovered myself, and certainly felt a great deal better, and that night I slept very soundly. The next morning O'Brien came to me again. 'It's a nasty slow fever, that seasickness, my Peter, and we must drive it out of you;' and then he commenced a repetition of yesterday's remedy until I was almost a jelly. Whether the fear of being thrashed drove away my seasickness, or whatever might be the real cause of it, I do not know, but this is certain, that I felt no more of it after the second beating, and the next morning when I awoke I was very hungry."

I may add that this is a mode of treatment perfectly well known in the merchant service, and found to be of inestimable value even at the very commencement of the complaint.

ON THE INTERMITTENT PERCEPTION OF SOUND, AS CONVEYED THROUGH THE CRANIAL BONES.

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Although it is not the specific purpose of this paper to discuss the value of the tuning-fork as a test of the perceptive capacity of the auditory nerve, but rather to record a few cases illustrating the occasional intermittent character of the perception of osseous vibrations, at one time much diminished and after a certain period increased, varying from time to time in the course of treatment, with improvement or aggravation in the diseased condition; nevertheless, a brief prefatory reference to the physiology of audition, and the theory upon which is based our knowledge of differentiating between disease of the middle ear and that of the auditory nerve, may not be inappropriate.

The simplest organ of hearing is found in the crustacea, in which animals it consists of a simple membranous sac filled with fluid, and lined on its inner surface with epithelium, from which fine, regularly arranged hairs project into the fluid. This epithelium, capped with its hair-like appendages, receives the terminations of the acoustic nerve. This simple ear is found only in connection with a dense skeleton; and the wisdom of the provision is apparent. There is neither tympanum nor external auditory canal in this form of life. The sound waves, falling upon the hard parts of the head, are carried to the fluid in the sac, and vibrations are excited in the hair-like processes or nerve endings just described, thus giving expression to the sensation of sound. Were the dense skeleton absent in this simple ear, the vibrations, there is reason to suppose, would not be sufficient to influence the nerve. We have, therefore, in this primitive form of life, the organ of hearing constituted of a vestibule alone. In the higher animals this simple membranous sac is developed into the complex arrangements of the labyrinth. There are here, in addition to the vestibule, the semicircular canals and cochlea. The membranous labyrinth in man is also a closed sac filled with fluid, the ramifications of the auditory nerve being distributed upon its walls. In addition to the labyrinth, air-breathing animals, including man, are provided with an external and a middle ear. This membranous sac is also inclosed in a bony structure, the osseous labyrinth; and the latter leads into the middle ear by two openings, the oval and round windows, which are closed by the lining membranes common to both cavities.

A simple and inexpensive experiment will show that sound waves in passing from air directly into water suffer a considerable diminution of their strength; while, on the contrary, if a tense membrane exist between the air and the water, the sound vibrations are communicated from the former to the latter with great intensity. We have in this fact at once an explanation of the use of the membrane closing the round and oval windows.

Johannes Müller * has shown that a solid body, fixed in an opening by means of a border of membrane so as to be movable, communicates sonorous vibrations from air on one side to water on the other side much better than solid media not so constructed. But the propagation of sound is rendered still easier if the solid

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* Müller's "Physiologie," Bd. ii.

conductor thus occupying the opening is fixed by its other end to the middle of a tense membrane which has atmospheric air on both sides. These facts further explain the use of the Eustachian tube in furnishing air to the middle ear, and of the chain of movable ossicles traversing the cavity of the latter, connecting as they do the membrana tympani with the membrane occupying the opening leading to the vestibule of the labyrinth. In man sonorous undulations may reach the peripheral terminal branches of the auditory nerve in the following ways: 1. They may be transmitted through the medium of the air to the membrana tympani, the vibrations of which are communicated to the fluid of the labyrinth through the malleus, incus, and stapes, and the membrane of the oval window. This is the so-called "aerial conduction" of sound. 2. They may reach the nerve by the cranial bones, either from *direct* contact of the vibrating body, or by the sound waves reaching the surface of the head through air. In either case the vibrations are propagated principally to the osseous walls of the tympanum and external auditory canal, whence they are transmitted to the membrana tympani, to the ossicles, and to the air contained in the external auditory canal and tympanum, and by these media reach the fluid of the labyrinth through the foramen ovale.

The original explanation given for the fact that a tuning-fork is so well heard from the cranial bones was by the supposition of a direct transmission of the sound waves to the labyrinth. This view is not wholly correct. The experiments of Politzer[*] and Lucae[†] have demonstrated that a tuning-fork, held vibrating on the cranium, sets the ossicles and membrana tympani in vibration. Although we can not deny the possibility of a direct transmission of sound to the terminal fibers of the auditory nerve in the labyrinth through the cranial bones without participation of the sound-conducting apparatus of the middle ear, the bone conduction incontestably reaches the labyrinth essentially through this latter medium. This physiological process is what is known as "*bone conduction*"; but it might be more correctly expressed by the term *cranio-tympanic conduction*, in contradistinction to *direct* bone conduction. We do not know to what extent *direct* bone conduction elicits a sensation of sound; but Lucae[‡] has recorded a case which furnishes incontestable proof that direct bone conduction is possible. In this case, on the right side there was no external auditory canal, no middle ear, no labyrinth windows; the auditory nerve and cochlea, however, were in a normal condition. The left ear, on the other hand, was normal in structure, and of normal hearing power. The right ear, therefore, was practically in the condition of the ear of the lower fishes described above. The watch was not heard on the right side through bone, but a bell, tone a', applied to the head on the right side, was heard *very well*, but weaker than on the left, or normal side.

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[*] Untersuchungen über Schallfortpflanzung und Schallleitung, "Arch. f. Ohrenheilk.," i, p. 73.

[†] Untersuchungen über die sogenannte Knochenleitung, *ibid.*

[‡] Anatomisch-physiologische Beiträge zur Ohrenheilkunde, "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," xxix, case 2, p. 62.

The first-instanced channel of transmission of sound to the auditory nerve, i. e., *aerial conduction*, is the common mode of hearing in man, and the impression thus produced on the nerve is, in a normal state of the hearing power, decidedly more powerful than osseous conduction. A simple experiment on ourselves—provided our middle ears and nerves are unaffected—will demonstrate this. Place a vibrating tuning-fork on the vertex or between the teeth; the instant the sound ceases to be heard from these points, hold the fork close to the ear, but not touching it, and the vibrations will be heard again. If we now reverse this experiment, and first hold the tuning-fork close to the ear for a moment, and then at once transfer it to the vertex, it will be heard clearly, but by no means as loud as in the first instance, when it was held close to the ear, i. e., aerial conduction, which proves that in this latter way the maximum amount of impression is produced on the nerve.

If while the tuning-fork is held on the vertex we gently [*] close the external auditory meatus of one ear with the finger, the sound will be heard very much louder than in the open ear, even though the tuning-fork be held over the mastoid process on the side of the open ear. This simple experiment has been turned to practical account, and furnishes us with a basis for the application of the tuning-fork for purposes of differential diagnosis between an affection of the labyrinth and one of the middle ear.

The increased loudness of the sound on the occluded side has been explained to be due [†] to increased resonance of the external auditory canal, and reflection [‡] upon the membrana tympani and ossicula auditus of the sound waves that have passed from the cranial bones to the air in the external auditory canal; and to the prevented escape of the sound waves which have reached the labyrinth and tympanic cavity. Lucae's* explanation of an increased intra-auricular pressure can not be accepted, inasmuch as the sound is also intensified if the palm of the hand be arched and held over the ear. According to these views, the increased resonance observed when the ear is closed results from the reflection from the cranial bones upon the nerve of the vibrations which have passed to the air in the external auditory canal, and in consequence of their escape from the labyrinth being prevented.

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[*] If the finger be forcibly pressed into the meatus, the perception of the tone will be diminished instead of increased.

[†] A. Rinne, Beiträge zur Physiologie des menschliche Ohren, "Prager Vierteljahrschrift," i, ii, 1855.

[‡] Politzer, "Arch, f. Ohrenheilk.," i, p. 328.

The same effect that is produced by stopping the ear with the finger is also brought about by any cause that interferes with the oscillating power of the membrana tympani or the chain of ossicles; i. e., retraction of the membrana tympani caused by increased atmospheric pressure on the outer surface of the membrane, as in obstruction of the Eustachian tube (by long closure of the lumen of this tube—as in catarrh of the middle ear—a resorption of the air in the tympanic cavity takes place, and the external air-pressure forces the membrana tympani and ossicles inward); adhesions between ossicles, especially between the plate of the stapes and the margins of the foramen ovale. Here the same cause which diminishes the aerial conduction—in other words, prevents the propagation of sound through the membrana tympani and ossicles—also effects an obstruction to its exit.

Therefore, in disease of the middle ear, the vibrations of the tuning-fork or watch, especially the former, applied to the cranium, should be heard with increased intensity in that ear in which the aerial conduction is diminished; or, in case of disease of both ears, the vibrations should be heard on the side of most defective aerial conduction, provided the labyrinth be not at the same time also affected, in which latter case the perception of sound through bone would be reversed. To this rule there are exceptions, and it is the object of this paper to contribute illustrative cases. *The intensity of sound, as conveyed through the cranial bones, may alternate in the same individual, the bone conduction for the watch and tuning-fork be less distinct or even obliterated, and the cause have its seat in the tympanum.*

Adam Politzer † has recorded a case which proves that the obliteration of the bone conduction may be due to middle-ear disease. The patient was a girl, aged fifteen years. After several days of high fever, an extensive effusion occurred in both drum cavities, consisting of a thick purulent exudation, and almost complete deafness. The perception through bone was entirely obliterated, but returned in the left ear at once after inflation, the pressure upon the labyrinth window being thereby relieved by the removal of the exudation from this part.

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* "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," xxv, p. 339.

† "Arch. f. Ohrenheilk.," i, p. 340.

Lucae,* Wendt,† E. Politzer‡ (of Pesth), and other observers, have also recorded cases which exhibited similar symptoms; but I do not find that this subject received much attention from otologists until quite a recent date, when Bürkner# contributed a highly interesting and valuable paper on intermittent bone conduction. When this author's paper appeared, three years ago, I had already observed several of these cases, and was then engaged in experimenting for the purpose of explaining the cause of the intermittence, conducting my experiments in a somewhat similar way to those of Professor Politzer,^ which were done for physiological purposes. In my examination of the cases to follow, the hearing power was tested with a watch of a mean normal distance of about fifty inches. In testing the bone conduction, the watch was applied to the mastoid process, temple, glabella, vertex, and between the teeth; but I have only indicated the condition of the sound perception as noted when the watch was applied to the mastoid process and between the teeth, because the vibrations pass from these points through good conducting media in the most direct way. A C tuning-fork was employed. I have selected typical examples, and shall indicate only the essential points.

OTITIS MEDIA PURULENTA.

CASE I.—B. P., aged 18 years. One week ago patient took "cold in the throat"; swallowing was difficult and painful; had high fever. On the second day of his illness pain developed in his left ear; he could not sleep for three nights on account of "earache."

Feb. 21, 1879.—To-day the pain in left ear is much less, but he now complains of pain in his right ear. Both tonsils are greatly enlarged and very red; the pharynx is also very red and secreting profusely. Left drum membrane very much injected in its upper half; there is a small perforation in the postero-inferior portion; pus in external auditory canal.

Upper half of right drum membrane is much reddened and swollen, the injection extending down handle of malleus. H. D., L. E., w.,◊ *ad concham;* R. E., 6″; whisper heard on left side only when mouth is two inches from ear. R. E., whisper, 4 feet; T.-F. between teeth, heard faintly in either ear, but better in right ear. On the right side the watch is not heard from any point of the skull, not even when the right meatus is closed; heard faintly in left ear from the mastoid process only. Politzerization easy on left side. Catheter has to be used on right side. After inflation, H. D., L. E., w. 3″; R. E., no perceptible improvement, although patient says he thinks he hears the watch tick a little better in this ear *ad concham* than before inflation. T.-F. is heard better on left side.

Feb. 22d.—Patient applied two leeches to each ear yesterday. The bleeding continued for nearly half an hour after the latter had dropped off, and patient

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* "Arch. f. Ohrenheilk.," ii, p. 81.

† *Ibid.*, iii, p. 61, case 3.

‡ *Ibid.*, i, p. 48.

K. Bürkner, *ibid.*, xiv, p. 96.

^ *Ibid.*, i.

◊ Hearing distance, left ear, watch.

fell into a quiet sleep, which continued through the night. There is no pain this morning, although the tinnitus still continues, and is more noticeable in the right ear than it was yesterday, perhaps because the pain which predominated yesterday in this ear diverted his attention from the noise. After inflation with the catheter, the patient exclaimed, "Why, the noise is gone!" However, this was not the case, although it had been greatly diminished; after fifteen minutes patient thought the tinnitus had returned in the right ear, but by no means as loud as before inflation. No other tests were made at this visit. Throat sprayed with solutio tinct. ferri chlor. cum potass. chlorat. Ordered left ear to be syringed with a weak warmed solution of boracic acid.

Feb. 25th.—Right drum membrane is less red and swollen. H. D., R. E., w. 2″, whisper, 8 feet; L. E., w. 8″, whisper, 15 feet. Bone conduction is present only in the faintest degree on the right mastoid process and between the teeth. T.-F. held between the teeth is heard better in the right ear.

March 2d.—Patient has been seen every day since the 25th ult. There is no discharge in the external auditory canal. There has been no tinnitus aurium for the past two days. H. D., R. E., w. 20″; L. E., w. 13½″. Watch heard over right mastoid process. T.-F. between the teeth is heard better in the left ear. After inflation the left external auditory canal contained a small amount of pus, which had been blown through the perforation in the drum membrane by the inflation; the watch is now heard at 15″.

March 4th.—H. D., R. E., w. 31″; L. E., 22″; watch over right mastoid normal, heard faintly over left mastoid. After inflation the watch is heard through bone equally well from either temporal bone. After the subsidence of the acute symptoms, levigated boracic acid was blown every other day into the tympanic cavity through the perforation in the drum membrane, by means of my powder-blower.*

March 10th.—To-day the perforation in the left drum membrane is healed. The membrane is still injected in its upper part. Patient remained ten days longer under treatment, at the end of which time the hearing distance for the watch was as follows: R. E., 42″; L. E., 37″. The perception through bone is normal. There is no tinnitus.

In the foregoing case we must account for the temporary absence of perception through bone for the watch, and the diminution in the sound of the tuning-fork on the left side, where the aerial conduction was least, entirely upon mechanical principles, i. e., the presence of purulent material in the tympanic cavity, which exerted pressure upon the labyrinth windows, causing an increased intra-labyrinthine pressure; the swelling of the mucous covering of the labyrinth windows, and especially the swelling of the drum membranes in their upper part, involving the chain of ossicles and forcing them inward. It has been maintained that in such cases the want of perception through bone is due to hyperæmia of the labyrinth (Politzer). From Hinton's observations one would infer that this hyperæmia of the labyrinth occurred quite frequently in connection with inflammatory affections of the tympanum; but

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* For a description of this instrument, see "Arch. of Med.," iii., p. 224.

Schwartze* states that, even with the most acute inflammation of the tympanum, a simultaneous hyperæmia of the labyrinth is met with only exceptionally. In the foregoing case, however, the cause of the diminished bone conduction was referred independently to intra-tympanic influences, and the effect of the bleeding seemed to favor this belief.

CHRONIC CATARRH OF THE MIDDLE EAR; LABYRINTH AFFECTION?

CASE II.—Thomas W., aged 45 years, came under observation at the Manhattan Eye and Ear Hospital, New York, April 25, 1879, with the statement that fourteen months before he had been struck on the head with an "ice run," which fell upon him from some height. He was rendered unconscious by the blow, and remained in this condition for about two hours. On recovering consciousness, he complained of tinnitus aurium and deafness. Vertigo developed soon after the injury, and has continued (with remission) ever since. Patient is suffering from chronic gastric catarrh, in consequence of which he has lost much in bodily weight and strength during the past year. He is now extremely nervous; he eats very little, and that little is often rejected by the stomach. On being questioned, he stated that he had been troubled with tinnitus aurium several years before, but that he had not taken much notice of it until after the injury, when he also discovered that he could not hear the tick of his watch. H. D., R. E., w. not heard *ad concham;* conversation in an ordinary tone of voice is heard only at a few inches from the right ear. H. D., L. E., w. heard only *ad concham.* T.-F., between the teeth, is heard better in left ear; watch heard through bone on right and left side from mastoid process only. The watch is heard faintly from either of these parts, but slightly better on the left side. Patient had inserted quids of tobacco into each ear "to stop the noise" in the latter. The tobacco having been syringed out, both drum membranes were found very much sunken and reddened; the former appearance was especially remarkable in the right ear, where the prominence of the processus brevis mallei was very pronounced. The reddening of the drum membranes was most likely due to the somewhat vigorous syringing. The light spots are diffused and indistinct on each membrane, and the membranes appear hazy; otherwise, no changes were observed. Pharynx red and swollen, and covered in parts with an offensive tough secretion. After inflation through the catheter, the hearing distance for the watch was as follows: R. E., ⅛″; L. E., 1″; whisper, R. E., 5 feet; L. E., 11 feet. Throat sprayed with a solution of ammonium chloride, gm. 2 : 115, and patient directed to gargle with a two-per-cent. solution of tannic acid. Diet prescribed, consisting principally of milk. Faradaic current, general and over the region of the stomach.

May 7th.—H. D., R. E., w. 2⅛″; L. E., 4″; whisper, R. E., 13 feet; L. E., 20 feet. The tinnitus, which has been markedly less during the past two days, is about the same to-day as when patient was seen for the first time. After inflation, H. D., R. E., w. 8″; L. E., 4″; watch placed on glabella heard only on left side; heard on the right side only when held on the right mastoid process, and then more faintly than in left ear, when held on glabella. Tinnitus very much less.

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* Hermann Schwartze, Klebs's "Handb. d. path. Anat.," ii, p. 120.

May 12th.—Still some vertigo, but tinnitus has not occurred in right ear since two days ago; slight tinnitus in left ear. H. D., R. E., w. 7″; L. E., w. 8″. After inflation, H. D., R. E., w. 9″; L. E., 5½″. Watch heard through bone on either side, over processus mastoideus, and between the teeth; T.-F., held between the teeth, heard only on left side.

May 18th.—H. D., R. E., w. 10″; L. E., w. 8″; after inflation, H. D., R. E., w. 12½″; L. E., w. 9″; bone conduction same as on the 12th inst. T.-F., between the teeth, heard better in the left ear.

May 25th.—There has been no tinnitus since the 14th inst. The vertigo, which has been very slight during the past ten days, has entirely disappeared. Patient remained under treatment until June 15th. When seen for the last time the record was as follows: H. D., R. E., w. 15″; L. E., w. 11″. Perception through bone is good over mastoid process and between the teeth; T.-F., between the teeth, is heard better in the left ear.

It is quite evident from the history of this case that the patient had suffered from ear disease prior to the injury, at which time his attention was directed to the condition of his hearing. The aurist is frequently consulted by patients for relief from tinnitus aurium, who have been subjects of ear disease for many years, perhaps, but whose attention was first attracted to their ears by the development of tinnitus; and they are much surprised to find their hearing very imperfect, only being able, perhaps, to hear the watch when placed in contact with the ear. Upon close questioning it was ascertained that the patient had suffered at times from dizziness some months prior to the injury. The vertigo, which was intermittent in character, could, it seemed to me, be referred to the gastric disorder, inasmuch as improvement in the condition of the latter was followed by marked diminution and final cessation of the vertigo. It is not unlikely that the injury did affect the labyrinth; but, at the time the patient first visited the hospital, fourteen months after the accident, I believe that the partial obliteration of the perception of sound through the cranial bones was essentially due to disease of the middle ear, which evidently antedated the injury and was quite independent of the latter. Although there was no suspicion of the presence of fluid in the tympanic cavity, paracentesis was done, but no fluid was found. I have, therefore, assumed the case to be one of chronic catarrh of the tympanum with impaction of the plate of the stapes in the oval window. The obliteration of aerial conduction and diminished perception of the tuning-fork on the right side when the first examination was made would point to a labyrinth affection; but it is seen that after removal of the impacted tobacco from the external auditory canal and vigorous inflation of the tympanic cavity, thereby occasioning an outward movement of the membrana tympani, the state of this was reversed; we then had, in fact, the signs of middle-ear disease, as evidenced by examination with the tuning-fork and watch.

CHRONIC ADHESIVE INFLAMMATION OF THE MIDDLE EAR.

CASE III.—Charles S., aged 20 years, came under treatment February 28, 1878. Patient had scarlet fever when ten years old. He does not remember to have had any ear trouble until three years ago, when he used a "nasal douche," which was followed by pain and a discharge from the ear. His general condition is poor, being very thin and anæmic. There are several scars on the neck from old strumous abscesses; tonsils are much enlarged. Both drum membranes are thickened, and appear to be in contact with the promontorium; they are red in their upper part; in the right ear several large-sized blood-vessels are seen coursing across the drum membrane to a point situated in its antero-inferior quadrant, probably the seat of the old perforation. The lower half of the membranes is of a yellowish-gray color. H. D., R. E., w. *ad concham* faintly; L. E., w. not heard *ad concham;* T.-F., held vibrating before the ear: R. E., 1″; L. E., heard only when almost in contact with the ear, and then very faintly. T.-F. (b), between the teeth, is not heard at all; tone c, on the other hand, is heard only on right side; bone conduction for the watch is not present from any point on either side. Inflation can only be done through catheter, and then with difficulty; the hearing distance remains the same as before. A piece of each tonsil was sliced off, and the throat was sprayed with a solution of iodide of potassium. Ordered a generous dietary, into which milk and cream entered freely; dialysed iron internally.

March 6th.—Patient has been seen every day since the 28th ult., Siegle's otoscope being used three times. On the third occasion rarefaction of the air in the external auditory canal produced a movement outward of the left drum membrane, which was not noticed before. H. D., R. E., w. 1″; L. E., w. *ad concham;* voice (ordinary conversational tone, bass), with each ear, five feet. Inflation can be done by Politzer's method to-day, after which the watch is heard as follows: R. E., 3″; L. E., *ad concham*, very much better than before; bone conduction for watch present only over right mastoid process.

March 14th.—The tinnitus, which on the day following paracentesis of the drum membrane had disappeared, is again noticed to-day in left ear. Bone conduction for the watch is not present from any point on either side, although after inflation the hearing distance is better than it was three days ago.

March 21st.—H. D., R. E., w. 5″, after inflation 6½″; L. E., w. 1½″, after inflation 3″; voice, about 12 feet in each ear; the watch is heard over either mastoid process, but better over right mastoid. T.-F., between the teeth, heard better on the left side; when placed on the vertex, the T-F. is heard only in left ear.

March 28th.—H. D., R. E., w. 5″; L. E., 4″; after inflation the watch is heard in both ears 6″. T.-F., between the teeth, is heard equally well on either side.

April 3d.—No tinnitus since a week ago. Siegle's otoscope, which has been used eight times since the beginning of treatment, shows, when the air is exhausted in the external auditory canal, that the manubrium mallei makes a liberal movement outward.

April 8th.—H. D., R. E., w. 8″, after inflation 9½″; L. E., w. 7″, after inflation 9″. Perception through bone fails for the watch on the left side; after inflation it is present from either mastoid process.

April 12th.—H. D., R. E., w. 8½″; L. E., w. 8″; watch heard over right mastoid only. After inflation it is heard from either mastoid, and at 9″ in each ear.

May 2d.—Upon my advice, patient passed from treatment until the following fall. The hearing distance for the watch was 11″ in both ears, and the voice was heard at 15 feet. The injection of ether vapor into the tympanum seemed to have had a good effect.

The following case presents many features in common with the foregoing:

Case IV.—Mrs. G., aged 80 years, a delicate little German lady, consulted me July 10, 1880, on account of great difficulty of hearing. She can trace her ear trouble to twelve years ago. She has never had a discharge from either ear. She understands conversation better at times; the state of the weather, however, having apparently little to do with improvement or deterioration. The prominence of the processus brevis mallei is pronounced in both ears; the light spot on the right drum membrane is diffused; on the left it is interrupted. Both drum membranes have an opaque look. With the otoscope can not make any perceptible outward movement of either drum membrane. There is tinnitus aurium. The watch is not heard *ad concham* in either ear. Politzer's acumeter, through air, 2″ in R. E.; 4″ in L. E.; placed on the glabella the acumeter is heard better on the left side; T.-F., between the teeth, is heard faintly on the left side; when the right ear is closed with the finger the T.-F. is heard better in the R. E. Inflation is easy, but produces no appreciable improvement.

July 13th.—Aerial conduction for T.-F., 1″ for either ear, but the tone is heard better in the right ear at this distance; T.-F., between the teeth, heard better on the right side; after inflation it is heard better on left side.

July 15th.—H. D., R. E., w. *ad concham*—Politzer's acumeter, 2½″; L. E., w. not heard *ad concham*—acumeter, 4″. T.-F., between the teeth, is heard better on the left side, even when the right meatus is closed; the watch is not heard through bone from either mastoid. H. D., R. E., T.-F., 1″; L. E., 2½″; after inflation, H. D., R. E., w. ¼″; L. E., w. *ad concham*. After inflation with catheter the watch is heard at ½″ from either ear, but louder in left ear; T.-F., between the teeth, is heard better in the left ear; acumeter, R. E., 8″; L. E., 12″.

July 17th.—Watch is heard *ad concham* in either ear, but better in the left; the bone conduction for the watch fails. H. D., R. E., acumeter, 2½″; L. E., 4″; T.-F., between the teeth, heard better on the left side; whisper, R. E., 8″; L. E., 3″; ordinary conversation is heard at 15 feet. T.-F., by aerial conduction, R. E., not heard; L. E., 2″. After inflation the T.-F. is heard, R. E., ½″; L. E., 3″; T.-F., between the teeth, better in the right ear. A few days subsequently she was taken ill, as her family physician informed me, with an acute uterine affection. When sufficiently recovered, she was removed to the sea-side, and I have not seen her since.

In cases III and IV somewhat similar causes operated to produce the same effect. The result produced by Politzerization and the use of the otoscope would furnish an explanation for the belief that the synechiæ binding down the parts of the conducting apparatus were, by the means adopted in the treatment, loosened or stretched—especially the synechiæ of the stapes which were believed to exist—thereby liberating the labyrinth, etc. In this way, it is thought, the improvement in the hearing power by air and by bone was brought about.

In case IV some form of catarrhal inflammation of the tympanum existed twelve or more years before the patient consulted me. It is immaterial whether this inflammation was mucous, serous, or purulent in character, inasmuch as adhesive inflammation may follow any one of these forms. In addition to the middle-ear disease, Mrs. G.'s case presents another element for consideration. When a high degree of imperfect hearing has existed for a considerable period of time, the terminal apparatus of the auditory nerve may become atrophied from absence of special excitation, or disturbance of nutrition of the ultimate nerve-apparatus take place from continuous intra-labyrinthine pressure, dependent upon tympanic disease, and it is believed that this latter condition obtained in her case.

Although recapitulative, in order that an explanation for the phenomenon of intermittent bone conduction may be understood, it will not be out of place here to formulate the points in differential diagnosis between an affection of the middle ear and one of the labyrinth, as evidenced by examination with the tuning-fork.

1. If a vibrating tuning-fork, c, be placed between the teeth, the hearing power being normal on one side and diminished on the other, and its tone be intensified in the ear of which the hearing power is diminished, the cause is seated in the external or middle ear, and the labyrinth is unaffected.

2. If the hearing power be impaired in both ears, and the sound of the tuning-fork be heard better in the worse ear, and intensified on closure of the ear of which the hearing power is most impaired, the cause is still located in the middle ear.

3. If under either of the above-mentioned conditions the vibrations of the tuning-fork be not heard better in that ear of which the hearing power is most impaired, even if its meatus be closed with the finger, and middle-ear disease as a cause can be excluded, there is an affection of the central apparatus of hearing. If the tone of the tuning-fork be still intensified by closure of the ear of which the hearing power is least impaired, there is disease of the central apparatus on one side only.

Should the sound of the tuning-fork not be intensified by closure of either ear, then the disease is on both sides, and has its seat in the labyrinth or in the brain.

In the first and second propositions the increased resonance results, as has been explained above, from the reflection of the vibration from the cranial bones upon the nerve.

In the third proposition the reflection or condensation of the vibrations of the tuning-fork upon the nerve when the meatus is closed does not intensify their perception, because the function of the auditory nerve itself and not that of the conducting apparatus is impaired. The foregoing points are, I believe, accepted by the majority of otologists; but it appears to be the opinion of a recent writer* that, "if the tuning-fork on the vertex be heard in the affected ear, we can not place the lesion in the labyrinth." This opinion, although emanating from an astute observer, must be incorrect; at least we have in the eye positive evidence that the optic nerve may be considerably affected by acute or chronic disease, and useful vision still remain.

The peculiarity that in some cases of middle-ear disease the watch is not heard by bone conduction, and in other cases examination with the tuning-fork gives the signs of labyrinth disease—i. e., the tuning-fork being heard by bone conduction better in the ear which is normal as to hearing power, therefore diminished instead of increased in the ear of which the hearing capacity is impaired—can not, it seems to me, be explained by assuming an interference with the conduction through the chain of ossicles. I incline to the belief, based upon experiments, that this phenomenon is due to increased intra-labyrinthine pressure, brought about in those cases of middle-ear disease in which there is an accumulation of fluid in the tympanum, or the membrana tympani is much depressed, in the former instance by the fluid in the cavity acting upon the oval or round window, or both, and in the latter instance by the plate of the stapes being forced against the membrane in the oval window. In both cases the terminations of the acoustic nerve suffer a mechanical irritation which gives rise on the one hand to subjective noises in the ear, and on the other hand annuls the perception of certain tones. Extreme pressure upon these parts may so interfere with intra-labyrinthine vibrations as to completely obliterate bone conduction for the tuning-fork.

The four cases given in this paper have been selected from the records of a large number of a similar class, in all of which the intermittence of the sound conduction through the cranial bones was brought about by the presence of diseased changes in the middle ear; and, if it can be established as a fact that this part and not the labyrinth is the actual seat of the cause of intermittence, certainly a great advantage will be gained, because, our knowledge of the pathology of the labyrinth being so meager, we should, by directing our efforts in treatment toward the diseases of the middle ear—which are well understood, and in which timely and appropriate therapeutic measures often yield encouraging results—be enabled to give a more favorable prognosis.

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* C. H. Burnett, M. D., "Am. Jour. of Otol.," iii, p. 200.

Clifton, Staten Island.

THE HISTORY OF DIPHTHERIA IN THE COUNTRY BRANCH OF THE NURSERY AND CHILD'S HOSPITAL, WEST NEW BRIGHTON, N. Y.*

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From January 1st to November 4th of the present year, 1881, fifty-one cases of diphtheria have appeared among inmates of the Country Branch of the Nursery and Child's Hospital. Previous to this outbreak no case had occurred in the institution since April, 1880, a period of nine months. During this epidemic various types of the disease have appeared, from the very mild, with almost no constitutional symptoms, to the severe and rapidly fatal form. No month except September has passed without one or more cases appearing. In January there were seven, in February one, in March fourteen, in April five, in May two, in June fourteen, in July two, in August four, in October one, and in November one. Of these fifty-one cases, twenty-three have arisen among children living on the grounds, nine among children living at the Home, and the remaining number among those living in boarding-houses. Four of those attacked were adults, six were children between five and ten years old, twenty-eight between two and five, and thirteen under two. Twelve cases terminated fatally; all of these were in children under five years old, and in all but one the membrane involved the larynx. Ten of these fatal cases were those of children living on the grounds.

The outbreak began with a child who had been in the institution only ten days. For eight days he was kept in the Reception Cottage. On Friday, December 31st, he was sent to the Manor House to board. He complained of feeling tired when he arrived there. On Saturday he did not feel well, and was thought to have a cold, but was not reported as being ill till Sunday, January 2d, when he was brought to the Nursery and put into a ward. Upon examination, his tonsils and uvula were found to be swollen and covered with a diphtheritic membrane, which extended to the back of the pharynx, and to the nasal passages, nearly filling them. His breath was very offensive and the cervical glands were swollen. On the third day of the disease the membrane had extended to the larynx; and on the fifth, forty-one hours after tracheotomy was performed, he died. Of fifty children at the Manor House and eight in the ward, all of whom were exposed, only one has since had diphtheria, and that case can not be accounted for by contagion from the exposure, unless we allow that the period of incubation may be twenty-seven days.

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* Read before the Staten Island Clinical Society, November 7, 1881.

On January 17th, fifteen days from date of attack in the first child, and ten from his death, one case of diphtheria appeared in a house adjoining the Nursery grounds, where thirty children were boarding. On the 20th two more children were attacked; on the 27th another; and on the 28th a fifth. Each child was removed as soon as any trace of diphtheritic membrane was discovered, but with each new case there was necessarily a fresh exposure. On the 29th the remaining twenty-five children, all of whom were exposed on the 28th, were removed to another house, after which no case occurred among them.

The drinking water at this boarding-house was found to be contaminated. The place was thoroughly put in order, and the children were moved back after six weeks' absence. For five months from this time the house was free from diphtheria, but on the 18th of August a child four and a half years old, who had been boarding there three months, was seized with laryngeal diphtheria. Tracheotomy was performed on the second day of the disease, and recovery followed. This was the sixth and last case from that place. None were severe cases, except the last, and all the patients made good recoveries.

On January 29th the first case among the children living on the Nursery grounds appeared. This was in one of the eight children in the ward who were exposed on January 2d. She manifested no symptoms, except a gradually increasing hoarseness and some rise of temperature, till February 2d, when respiration began to be noisy and labored, and a small patch of membrane appeared on the back of the pharynx. On the morning of the 3d tracheotomy was performed, and she died three hours after. No child or woman in the ward contracted the disease, although they must have been thoroughly exposed, as the child was not removed from the ward till the membrane appeared on the pharynx, four days after the laryngeal symptoms began.

The next person attacked was an officer of the institution, who was living at the Home during the day and sleeping at the Pell Cottage, near the Home, at night. She complained first of a sore throat on February 20th. The next day a membrane appeared on the tonsils. The attack was a mild one, and in a week she was able to return to her duties.

On March 1st a woman living in the Brooks Cottage was seized with a very mild attack. On March 3d a child seven months old, strong and healthy, living in the up-stairs ward of the Barlow Cottage, was taken severely ill with the disease. Her temperature was 106·4° on the evening of the first day. The membrane extended rapidly through the pharynx, nose, and larynx. In the afternoon of March 3d, the second day of the attack, she died. Her temperature two hours before death was 108·2°. On the morning of the 13th of March a child two years old, in the Cooper Cottage, was reported by the nurse as having "croup"; his voice was very hoarse, and his breathing was noisy. These symptoms increased steadily till the voice was entirely lost and the breathing was exceedingly labored. His general condition was so miserable that tracheotomy was thought to be useless, but after two days his symptoms became more favorable and he finally recovered. No membrane was ever discovered, although he was frequently examined.

On March 14th another child in the same ward of the Cooper was found to have a small patch of membrane on one of his tonsils. His symptoms were very mild, and in a few days the membrane had disappeared. On March 16th a case appeared at the Home. From this time till March 29th nine children were attacked—one on the 16th, three on the 17th, two on the 22d, one on the 23d, one on the 27th, and the ninth and last one on the 29th. These cases were nearly all severe, and one was fatal.

On March 21st two children on the Nursery grounds were attacked—one in the Van Rensselaer and the other in the Brooks Cottage. On April 11th another case appeared in the Van Rensselaer Cottage. Both the cases in this cottage were severe, and one of them was fatal. On April 7th a third case appeared in the Brooks, and on October 7th a fourth. On April 17th two children living in the Hunter Cottage, who had recently recovered from scarlatina, were seized with diphtheria. On May 17th a third case appeared; on June 4th another, and on June 28th a fifth, which was the last in that cottage. The first three cases terminated fatally; the last two were comparatively mild.

On May 5th diphtheria appeared in a child living in the Cooper Cottage, who was convalescing from scarlatina. This was the third and last case in that cottage.

On June 4th four cases of diphtheria sprang up in a boarding-house at Castleton Corners, where fifteen children were boarding. On the 5th another case appeared, on the 6th two cases, and on the 7th two more, making nine altogether. At this time the place was inspected, and the well water, which the children were drinking, was tested and found to be impure. This was thought to be a possible cause for the disease, and cistern water was given them in place of it. From this time till July 6th no case occurred in the house, but on that day a very mild case appeared. On August 3d a severe case appeared, and on the 4th and 5th of the same month several cases of simple pharyngitis. Upon inquiry it was found that the well water had again been given them to drink, as the cistern was empty. From this time the well water was boiled before using, and no more cases of diphtheria have appeared.

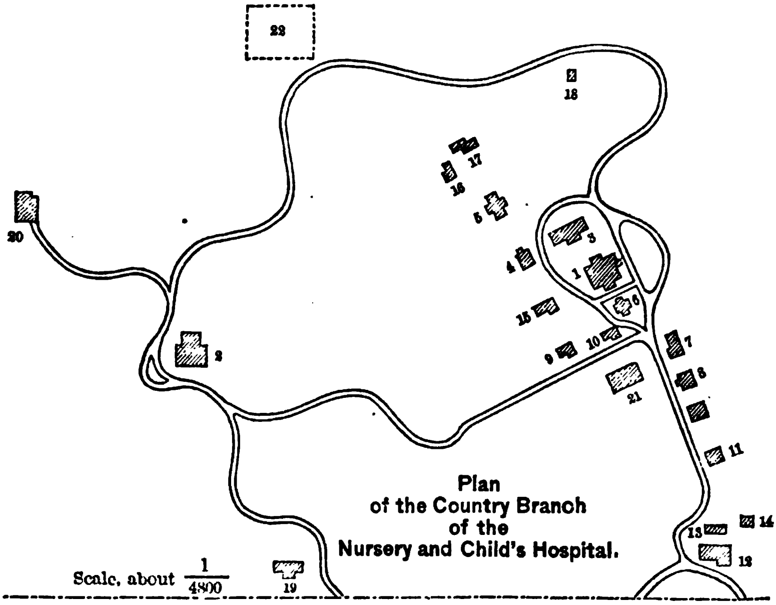
Three other boarding-houses—two at Castleton Corners and one in the village—have had each one case originate in them.

On June 19th a case occurred in the Sullivan Cottage, which up to this time had been free from diphtheria. Two days later a second case arose, and on November 5th, after a period of four and a half months, a third case appeared. The first and last cases were fatal.

On July 28th a child in the Barlow Cottage was taken with diphtheria of a very severe form. This was the first case in that cottage since April 3d—a period of more than three months. This case was followed by two more, appearing one on the 11th and the other on the 12th of August, making in all five cases in that cottage, two of which were fatal.

The case which appeared in the Sullivan Cottage on November 5th, and the last which we have to record, was that of a bottle-fed baby two months old, the youngest child which has been attacked.

In every case the patient was quarantined as soon as the disease was recognized, and the ward from which he was taken was disinfected after his removal.



Plan of the Country Branch of the Nursery and Child's Hospital.

Scale, about $\frac{1}{4800}$

1, Hospital; 2, Home; 3, Brooks; 4, Appleton; 5, Barlow; 6, Van Rensselaer; 7, Cooper; 8, Hunter; 9, Sullivan; 10, Kingsland; 11, Quarantine; 12, Reception; 13, Spring; 14, Pump-room; 15, Laundry; 16, Bakery; 17, Ice and coal; 18, Morgue; 19, Pell; 20, Stable; 21, Sanitarium; 22, Burying-ground.

In every place where the disease has appeared, a local cause has been looked for. At two of the boarding-houses the drinking water was found to be impure, and the disease disappeared when the children stopped drinking the water. At the Home a leak of long duration was discovered in a pipe and repaired, a short time before the outbreak began there. At the Hunter Cottage, where five cases originated, defective plumbing was found and repaired, after which no more cases appeared there. At the Brooks and Barlow Cottages unhygienic conditions were found, but the cases which sprang up after their removal were quite as severe as those which occurred earlier.

A DOME-TROCAR CATHETER FOR TUNNELING THE ENLARGED PROSTATE, FOR SUPRA-PUBIC OR RECTAL PUNCTURE OF THE BLADDER, AND FOR TAPPING OVARIAN CYSTS PER VAGINAM.

By SIMON FITCH, A. M., M. D. Edinb.,
HALIFAX, NOVA SCOTIA.

The instrument is virtually a catheter within a perforating tube. The main object intended is to make a direct channel through the enlarged prostate, instead of nibbling off fragments of the gland through the floor of the urethra, as is attempted by several recent contrivances. It will likewise be found most efficient for puncture of the bladder from the rectum, for discharging noxious intra-peritoneal effusions, for antiseptic washing of the peritoneal cavity through the retro-uterine cul-de-sac, and for evacuating and injecting ovarian cysts *per vaginam;* and it will be of immense value in supra-pubic lithotomy by opening the bladder from within, outwardly.

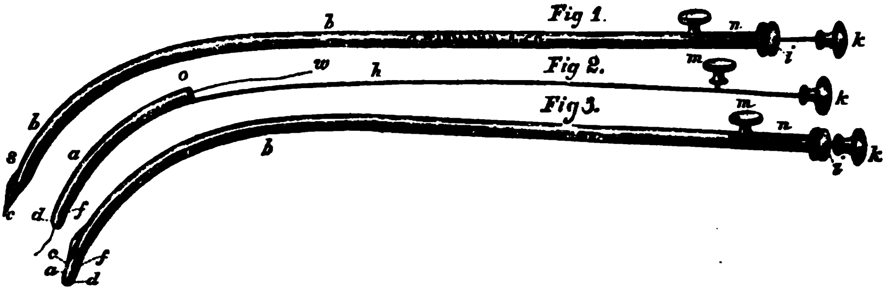


Fig. 1 represents the exterior of the instrument with the point unsheathed; *b b* is a thin steel cannula, in shape like a catheter, thirteen inches long, size No. 11, American scale, the distal extremity open, with the edge of the *terminal third* of the orifice ground sharp, and prolonged into a thin, lancet-shaped cutting point, *c*, with a *protuberance*, *s*, behind it. The proximal portion of the cannula has a slot, *n*, to accommodate the thumb-screw, *m; k* is a disk on the end of a steel spring described under Fig. 2.

Fig. 2 shows the interior parts wholly withdrawn from the outer cannula; *a* is a silver tube two and a half inches long, of suitable size and curve, to fit closely and accurately within the outer cannula, *b b*, and to slide smoothly back and forth through the orifice, *c*, Figs. 1 and 3. This inner tube, *a*, is mounted on a strong, flat steel spring, *h*, sufficiently long to protrude the dome, *d*, one quarter inch beyond the orifice, *c*, of the outer cannula. The inner tube is advanced and retracted by means of the disk or button, *k*, on the proximal end of the spring. The thumb-screw, *m*, plays in a slot, *n*, in the outer cannula, and fixes the inner tube in any required position. The distal end of this inner tube is domed over at *d*, making a smooth, rounded end, like that of a catheter.

At the base of the dome is a fenestra, or large orifice, *f*, by which the urine freely enters the inner tube, *a*, and, flowing through *o* into the outer tube, *b*, Fig. 3, is discharged at *i*. There is a small perforation in the apex of the dome, *d*, so that instantly, as the cutting point, *c*, Fig. 1, enters the bladder, some urine will escape through the perforation and appear at *i*, Fig. 1, showing that the dome may now be pushed forward; *w* represents a wire passed through the perforation merely to show its position.

Fig. 3.—Here the combined parts are shown complete, the puncturing point and edges occluded, and the instrument virtually a simple catheter; *d a* is the dome and inner tube protruded, pressing upon and accurately guarding the thin cutting point, *c*, and the adjacent sharp edge of the outer cannula, *b*. The fenestra, *f*, is thus disclosed and made available for the free exit of the urine; *k* is the disk on the end of the steel spring pushed forward so as to protrude the domed end of the inner tube, and fixed *in situ* by the thumb-screw, *m*. The protuberance, *s*, raises the urethra, and prevents the possibility of its lining membrane being scratched by the point, *c*. This point should be so thin and fit so closely upon the inner tube as to be imperceptible if the finger is passed over it.

To Tunnel the Prostate.—The instrument, with the dome fully protruded as in Fig. 3, and fixed by the thumb-screw, *m*, is introduced by the urethra till the dome, *d*, is stopped by the enlarged prostate, where it is to be firmly held while the fore-finger of the left hand steadies the prostate; then the thumb-screw, *m*, is loosened, and the tips of the fingers and the thumb of the right hand grasp the outer cannula, *b*, Fig. 3, and press it quickly forward. If now the instrument does not promptly advance, let the right thumb nail catch the end of the outer cannula at *i*, and push it onward while the inner side of the right middle finger makes counter-pressure on the distal edge of the thumb-screw, *m*, or an assistant may pull out the disk, *k*, so as to retract the dome, especially taking care that while the inner tube is being retracted the outer tube is to be pushed boldly onward, when the cutting point, *c*, Fig. 1, of the outer tube will pass easily through the prostate into the bladder, and urine escaping at *i* will show that the bladder is entered and the operation completed. Then, the dome being protruded by pressing home the disk, *k*, and fixed by tightening the screw, *m*, the instrument again becomes a harmless catheter, giving full flow to the urine through the fenestra, *f*, and may be retained in the bladder twenty-four hours, or until the perforation is sufficiently patulous, shown by the instrument moving easily in it; then it may be withdrawn, and a full-sized metal catheter introduced twice a day till the new channel is permanently established.

For Supra-pubic Puncture.—Introduce the instrument by the urethra, with the dome protruded as in Fig. 3, raise the bladder upon the end of the dome, and advance the lancet point of the outer cannula till it emerges just above the pubes, then push out the dome and retain it as a guide for the other steps of the operation. The bladder may be filled or emptied by adapting to the instrument an attachment similar to the coupling on the ordinary dome-trocar.

FOR RECTO-VESICAL PUNCTURE.—The exact place for puncture having been defined by the finger in the rectum, the dome is pressed upon the part, then the point of the outer cannula is pushed into the bladder, and finally the dome is again protruded and fixed by the thumb-screw, and the instrument left in the bladder as long as required.

IN TAPPING OVARIAN CYSTS PER VAGINAM.—If the fluid is viscid, the instrument may be of larger caliber.

A short tube, similar to the curved part of the outer cannula of this instrument, but of larger caliber, with an inner tube of soft rubber, one inch longer than the outer cannula, and fitting loosely, and without the steel spring, would be perfectly available for instantaneous tracheotomy without preliminary incisions, but the instrument should be made with the point and cutting edges on one side, preferably the left side, of the cannula, so as to divide the rings of the trachea transversely.

This dome-trocar catheter is very perfectly made by Messrs. George Tiemann & Co., of New York.

September 9, 1881.

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Editorials.

THE PHYSICIANS' MUTUAL AID ASSOCIATION.

SOME months ago we alluded to the character of the work that was being done by this excellent society, and urged our readers to aid in furthering its prosperity. By the courtesy of the Secretary, Dr. Daniel Lewis, we have been favored with a copy of the thirteenth annual report of the association, for the year ending November 1, 1881, together with a letter giving still later information in regard to its affairs. At the close of the year the number of members was 407, against 350 at the date of the preceding report—certainly a most gratifying increase, the practical result of which is that, as

Dr. Lewis states, the association now pays $400 to the family of each deceased member. The permanent fund amounted to $8,858·76 on the first of November—an increase of $2,604·21 during the year. The greater part of this increase—$2,133·18—came in one donation. The report credits this donation to "the Finance Committee of the American Medical Association." The casual reader might infer from this clause in the report that the sum mentioned was given out of the funds of the American Medical Association. We have reason to believe that such was not the case; and it ought not to have been. On the one hand, the American Medical Association has nothing to do with local charities; on the other hand, New Yorkers are not in the habit of accepting alms from without their own territory. What really happened was this: When arrangements were making for the entertainment of the American Medical Association at its meeting in New York, in 1880, a sum of money was collected by subscription from among the profession in this city. After the meeting had been held it was found that the amount so collected was in excess of what was needed to pay the bills. Every subscriber was informed of this state of things, and was asked whether he preferred to receive back his proportion of the excess or give it to the fund of the Physicians' Mutual Aid Association—the latter suggestion being promoted by the personal exertions of Dr. Walter R. Gillette. The result was, that the sum mentioned was handed over to the association as a gift from individual physicians living in New York. That was a very proper and creditable act, and we think that the association would be esteemed all the higher by the profession were it generally known that this was the source of the donation. That it is not so set forth in the report, we can impute only to inadvertence. Remembering that the proceeds of this permanent fund do not become available for the beneficent purposes of the organization until the principal has reached the sum of $10,000, and that but little more than $1,000 is now needed to bring it up to that amount, we would again urge upon the more favored ones among the profession in this city to aid in making up the deficiency. To those of lower estate we can give no better advice than that they should become members of the association.

The report records the death of five members—Dr. James Otis Pond, Dr. Joseph Sears Monell, Dr. Max Herzog, Dr. John Williams Sterling, and Dr. Nelson Place, jr. Since the close of the year death has deprived the association of its President, Dr. Robert A. Barry, during whose incumbency it enjoyed the unusual prosperity that we have noted. Much of the success of such an organization always depends upon the executive officers, and the hard work falls largely upon the presiding officer. It seems fair to infer, therefore, that the late Dr. Barry closed an unusually busy and useful career by much personal exertion in behalf of this most praiseworthy association, in the welfare of which he had shown a deep interest for many years. His successor, Dr. George A. Peters, may well be depended upon to continue the good work.

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Reviews and Literary Notes.

A Treatise on Comparative Embryology. By Francis M. Balfour, LL. D., F. R. S., Fellow and Lecturer of Trinity College, Cambridge. In two volumes. Vol. II. London: Macmillan & Co., 1881. Pp. xi–655–xxii. [Price, $5·25.]

Mr. Balfour's second volume treats of the tunicates, amphioxus, and the vertebrates, and therefore possesses immediate interest for the student of the medical sciences. It resembles the first volume in general characters, but differs in being much bulkier, in having somewhat better illustrations, and in possessing a good index. This last is a very marked improvement, since that of the preceding volume was singularly defective. The matter of indexes is certainly an important one, especially in a work like the present, which includes a large mass of details. In this instance we call particular attention to this point, because we regard it as an indication, on Mr. Balfour's part, of that promptitude in improvement which characterizes the superior workman. The illustrations are numerous and happily selected, and in some cases are excellent as engravings, as far as one can judge from the printer's impressions. To one accustomed to the standard of excellence in America the great inferiority of the English printers in the use of woodcuts is painfully obvious, so that reiterated reference to that deficiency is the necessary result of every honest attempt to criticise the illustrations of English books. It is to be presumed that the publishers are to blame in the present instance, the more so as the Messrs. Macmillan are somewhat noted for the use of second-rate cuts in their scientific books.

Let us turn to the consideration of the volume from a scientific standpoint. Only about 230 pages are taken up with the embryologies of the higher animals, after which follow three chapters on the homologies of the germinal layers in vertebrates, on the ancestral form of the chordata, and, finally, on the general homologies of the germinal layers and on larval forms. The second half of the volume is occupied by "Part II, Organogeny." It would be difficult to give an adequate idea of the amount of labor involved in mastering the enormous literature upon which Mr. Balfour's work is based. The citations refer to about six hundred books and memoirs; a thousand, including the first volume. It is easier to recognize the felicity with which our author summarizes our present knowledge, so as to give due emphasis to the general principles and important phases of development in each class, without slighting the details. He also renders the great service of indicating the weak points in the present status of embryology, so that the student can easily learn of what problems the solution is most pressing. Mr. Balfour shares Professor Huxley's gift of putting things in a happy way. We might quote many instances, but it will suffice to refer to his very clear account of the organ of Corti (pp. 432–434) and its development. The essence of his method of presentation is to make, first, the simple general statement, then to add the details. That this is right may seem sufficiently obvious, but to do so is so unusual that the adoption of this method by Mr. Balfour distinguishes him as a remarkable writer. The natural tendency is just the reverse, because information is acquired by detail, and the detail is gradually shaped into a generalization. Now, it requires uncommon mental assimilative power to take in information and recombine it into new forms, and, accordingly, we find in the majority of scientific writings the effects of the predominating influence of the first order which the facts of the subject assumed in the author's mind. Mr. Balfour, on the contrary, breaks loose from this malign conservatism, and the admirable clearness of his *Darstellung* testifies to the benefits gained by his escape.

Mr. Balfour unites the tunicates in the same division with amphioxus and the vertebrates, the *chordata*, following in that respect the German school. This view was introduced by the remarkable researches of Kowalewski on the tunicates, and his discovery of the formation of the chorda dorsalis in that class. Yet the more fundamental character of segmentation of the body has not been observed in the ascidians, so that their union with the vertebrata is, at the best, uncertain in its justification. It seems to us that an exaggerated importance is attached to the notochord and its supposed absence in the lower segmented animals; especially if it be remembered that we have only just learned that it arises from the entoderm, and that we must therefore look for it in the lower forms in the wall of the intestine, where certainly no one has hitherto thought of searching. On the other hand, greater stress may be laid on the presence of pharyngeal gill clefts.

The first chapter, on amphioxus, is necessarily barely more than an abstract of Kowalewski's two memoirs, which leave so much to be amended and added that one's surprise is renewed over all the speculations to which so little and imperfect knowledge of this low fish has given rise. We look forward eagerly to the appearance of Dr. Hatschek's promised memoir. The chapter on the urochorda (tunicata) is hardly more satisfactory, in spite of the long array of authorities upon which it is based. Indeed, such a chapter brings out very clearly the advantage of a comprehensive summary of what is actually known, and particularly impresses upon the reader the fact that the possession of Balfour's work will be an immense assistance to the investigating embryologists who unfortunately are not infrequently so carried away by eagerness to discover what is new that they fail to acquire a comprehensive acquaintance with previous work.

Chapters III–X take up in succession the various classes of vertebrates. Here our author is upon his own ground, and is himself an eminent investigator. Thanks to his own labors, coupled with those of many others, he has been enabled to give a comparatively exact and complete account of the development of the elasmobranchs, the amphibia, the aves, and the higher mammalia. The embryology of the remaining classes of fishes, of the reptiles, and of most mammals, urgently calls for further research. America ought to contribute toward stopping some of these gaps. Have we no one to study the embryology of the alligators, turtles, or opossums —all animals for the investigation of which we have unrivaled opportunities? In the chapter on the teleosts there is the serious omission of any account of the metamorphoses of young fishes—a very important subject, and one about which quite extensive information has been accumulated. To some extent the same remarks might apply to birds. On the other hand, to these chapters as a whole the most cordial praise must be given. Every student of vertebrate morphology and of medical embryology ought to be thoroughly familiar with them. The chapter on the mammals touches the physician most nearly, but, inasmuch as the fundamental traits of vertebrate development are better shown and have been more clearly analyzed in the lower classes, treated before, this chapter is devoted to the characteristically mammalian features of the embryos. The most important of these is the placenta, to which a correspondingly large space is given up. The review of the evolution of the placenta on pp. 216–218, tracing out its gradual modifications from a primitive discoidal allantoic placenta, deserves special mention. The chapter closes with an abstract of the peculiarly mysterious development of the guinea-pig, and with several pages devoted to the human embryo. We think it would be a welcome addition to these chapters to interpolate a larger number of figures of whole embryos in various stages. There is at present rather a tendency to neglect the older methods of dissecting embryos in favor of section cutting, and in yielding to that tendency a valuable field of research is left aside and neglected. Coste's exquisite figures show how much may be learned through simple dissections, often better than from the most perfect series of microscopical sections.

Chapter XI, "Comparison of the Formation of the Germinal Layers and of the Early Stages in the Development of Vertebrates," is essentially a reproduction in enlarged form of the author's paper with a similar title in the "Quarterly Journal of Microscopical Science" for 1875. In the next chapter there is an attempt to reconstruct from embryological data the ancestral form of the chordata. Nothing that Mr. Balfour has written shows, it seems to us, more fully than this essay his learning, judgment, and originality. We regret only that he has not incorporated in it his views concerning the homologies of the excretory organs. The chapter of general conclusions made a preliminary appearance in the form of two articles in the "Quarterly Journal of Microscopical Science." It contains no reference to the fundamental histological differences which characterize the ectoderm and the entoderm, and which precede the formation of the gastrula, thus proving that the gastrula is nowise the primitive form. Nor is any heed paid to the homology which is thought to exist between the ectoderm of the larva and the ectosarc of the ovum—a homology which, if proved, would further demonstrate that delamination is the primitive method of forming the gastrula. In the part on larval forms Hatschek's work is scarcely alluded to, although it is certainly the most important of all. This omission is entirely inexcusable, but we are happy to add that it is the only one of the kind we have noticed. This instance is the more to be regretted because due consideration of Hatschek's views would have freed the chapter from several prominent defects.

We hope that in a new edition, which will undoubtedly be called for, and which we trust Mr. Balfour will prepare, the author will add a chapter on the comparative embryological differentiations characteristic of the various types. It would be of great value to the student, because giving him the results, which are the essential object of every sound embryological research. At present one rather gathers from the book the feeling that embryology is a ship in which we may safely traverse an immense ocean of speculation as to the ancestral descent of animals. Why not be satisfied at once with the morphological deductions which may be honestly drawn from embryological data, instead of rushing on to most remote possible consequences? Yet it would be unjust not to add that Mr. Balfour enters but rarely and never carelessly upon this enticing though unprofitable way.

The second part of the work deals with the comparative development of the organs. The author thinks that our knowledge of the development of organs in most of the invertebrate groups is so meager that it would not be profitable to attempt to treat systematically of the organogeny of the whole animal kingdom. For this reason the plan adopted in this section of his work was to treat somewhat fully the organogeny of the chordata, which is comparatively well known; and merely to indicate a few salient facts with reference to the organogeny of other groups. This decision, which we must consider wise, has resulted in the production of a fragmentary treatise, so far as the invertebrates are concerned, which we regret more as we follow the author's presentation of the leading facts and problems of "chordate" development, and grow familiar with that quality of mind displayed which works with equal facility upon details and upon generalizations. It would be an advantage to morphology if Mr. Balfour would give the same thoughtful study to the development of invertebrate organs which he has bestowed upon that of the organs of the chordata.

The chapters which will seem most novel to the reader not already familiar with recent embryological research are those upon the skull, the limbs, and the urogenital system. Those who still cling to the obsolete vertebral theory of the skull will be surprised to learn how entirely the researches of Parker have swept away such apparent support as it had; while those who cherish the idea of antero-posterior symmetry will find in the morphology of limbs a complete contradiction of that conception.

If we should enter upon a more elaborate review it would be only to praise in detail what we commend as a whole, and perhaps to indicate some respects in which a higher standard of excellence might be reached. So extraordinarily rapid is the present advance of embryology that Balfour's work is already behind the times—we need only refer to the investigations of Hatschek and Rabl on mollusks, those of the brothers Hertwig on ctenophores and sagitta, and to other important papers which might be cited.

In brief, our opinion of Balfour's Embryology is as follows: It is remarkable for its soundness; for the fullness and fairness with which it summarizes the present contents of embryological science; for the clearness and conciseness of the presentation of the facts and the conclusions to be drawn from them; for its suggestiveness in pointing out new lines of research; and, finally, for its originality, not only in the treatment of the whole subject, but also by the incorporation of new observations and interpretations. Faults there are, of course, yet we are surprised that they are so few and unimportant. All naturalists should thank the author for his treatise, which is one of the very most valuable of recent contributions to biology.

Lectures on Digestion: an Introduction to the Clinical Study of Diseases of the Digestive Organs. Twelve Lectures, delivered to Practitioners and Advanced Students of Medicine during the winter session 1878–'79. By C. A. Ewald, Lecturer in the Royal University of Berlin, etc. Translated by Robert Saundby, M. D. Edin., etc. New York: William Wood & Co., 1881. Pp. xii–149.

Our knowledge of the physiology of digestion has within the last decade received so many additions, of which the ordinary text-books give no account, that a concise description of the progress made in this department of the science can not fail to be welcomed by the profession. The present volume is, therefore, timely in its appearance; and it will be doubly acceptable as coming from so good an authority as Professor Ewald, who has personally contributed not a little to its advancement.

The book comprises twelve lectures, the first two of which discuss the subject of ferments and their action, and in particular draw attention to the relations and differences existing between the unorganized and organized ferments. The question as to the identity of action of these two classes the author does not undertake to decide, but gives impartially the arguments for both sides. He points out, however, one difference existing between them, which is of practical importance; that is that, when introduced into the body, one class sets up a pathological, the other a physiological action. Of the remaining lectures, eight are devoted to a description of the digestive organs proper. In regard to each of the latter, the author gives a sketch of the histology, including an account of the microscopic changes which the glandular cells undergo during the process of digestion, and an enumeration of the physical characteristics, the constituents, and the physiological functions of each secretion. Then follow a lecture upon absorption and one in which are discussed the combined action of the digestive juices and the destiny of the several kinds of food. An appendix is added, containing some points of more immediate interest to the practitioner.

One valuable feature of the book consists in the application made by the author of his physiological data to the explanation of pathological phenomena. Another point which will be of service to the physician is found in the various rough-and-ready chemical tests scattered here and there through the book.

We can not commend the way in which the translation has been done. Dr. Saundby has failed to render the somewhat involved German into simple idiomatic English; and by keeping too closely to the words of his author he has sacrificed not only elegance but also clearness of expression. In some places he even seems to have misapprehended the meaning of the sentence he is translating. Apart from this defect, we warmly recommend the book as a clear, concise, and sufficiently complete synopsis of the more recent views upon the physiology of digestion.

The Disposal of the Dead: a Plea for Cremation. By EDWARD J. BERMINGHAM, A. M., M. D., etc. New York: Bermingham & Co., 1881. Pp. 89.

THE title of Dr. Bermingham's book is unpretentious; so also is its material. The seven chapters into which it is divided treat of the various known methods of disposing of the dead, the evils of burial, the history of the recent progress of the cremation theory and practice, descriptions of crematories and processes, etc. Any one who looks for an exhaustive treatise on the subject in this brochure will be disappointed. It is a plea, and a plea only—a plain, earnest statement of the facts and arguments used by the small body of cremationists, who are striving to institute the clean and rapid decomposition of human remains by fire, in place of slow putrefaction. The subject admits of no very long or elaborate arguments, and Dr. Bermingham has doubtless produced a better effect by his simple, straightforward statements and facts than he would have done by more rhetorical display.

This subject of cremation resolves itself chiefly into two considerations: utility and personal preference. It is extremely easy to show that ashes are less dangerous to health than decomposing animal matter is; and it is also easy to demonstrate that germs of disease may and often do spring from buried corpses. It could also probably be shown that the recurrence of epidemics and the scourges which follow great wars are often caused in that way. Thus the sanitary arguments of the cremationists can not be controverted, and must appeal to the sound common sense of all thinking men, and the whole question is, whether deference to convention and to the established method of burial outweighs the intrinsic advantages of cremation in a sanitary way. Each man must decide this for himself. To many persons, outside the sanitary considerations, cremation is preferable, as being more cleanly, as avoiding the danger of being buried alive, and for many other reasons. Familiarity with the actual process will doubtless do much to break down that existing prejudice which at present presents the most formidable barrier to the progress of this movement. Meanwhile the cremationists are advancing their theories in the right way—not forcing them on the public *vi et armis*, but simply announcing their own preferences, proclaiming their views, and demanding a fair hearing of their claims. Dr. Bermingham and his fellow-believers are also wise in dissociating the subject entirely from any religious question, and they seem determined to avoid that whirlpool of useless controversy. The publication of Dr. Bermingham's book, taken in connection with the existence of a flourishing cremation society, tends to show that the subject has taken root in the minds of the public, and that practical, constant cremation may ere long be among established customs. It is, however, scarcely probable that it will for many years, if ever, entirely supersede, or even largely supplant, the present method of burial.

A Practical Treatise on Impotence, Sterility, and Allied Disorders of the Male Sexual Organs. By Samuel W. Gross, A. M., M. D., Lecturer on Venereal and Genito-urinary Diseases in the Jefferson Medical College, etc. With sixteen illustrations. Philadelphia: Henry C. Lea's Son & Co., 1881. Pp. viii–17 to 174, inclusive.

We think that Dr. Gross's little book is a most praiseworthy attempt to fill a gap in medical literature that has long been felt. There is a class of derangements of the genital organs that have very commonly heretofore been relegated to the domain of transcendentalism in its worst sense. Their pathology has been treated in as vague and unsatisfactory a manner as has been that of hysteria, epilepsy, ecstasy, and other like affections, the essential causes of which are more or less mysterious. Impotence and spermatorrhœa are commonly described as functional diseases of the testicles, without much attempt to explain them upon any certain organic basis. In his preface Dr. Gross says concerning them: "They usually depend upon reflex disturbances of the genito-spinal center, and are almost invariably induced or maintained by appreciable lesions of the prostatic portion of the urethra, which, as they may not be perceived by the patient, are frequently overlooked by the physician. A more extended knowledge of these pathological facts, it is hoped, will afford a more rational and simple basis for treatment." The author's discussion of this branch of his subject is rational, and eminently practical.

A very interesting chapter is devoted to the subject of sterility. It is believed that in this connection attention has heretofore been paid too exclusively to the female. It is claimed that "in one instance in every six" the male is at fault.

La Ceguera en España. Discurso leido en la sesion inaugural de la Academia y Laboratorio de Ciencias Médicas de Cataluña en el curso de 1880 á 1881. Por el Dr. D. Luis Carreras-Aragó, Profesor libre de Oftalmologia, etc. Barcelona: Los Sucesores de Narciso Ramirez y C, 1881. Pp. 51.

This is an inquiry into the statistics of blindness in Spain. The author considers briefly the number of blind persons throughout the four regions of Spain; the relation of blindness to latitude, altitude, age, sex, condition, etc.; the influence of certain special diseases in its production; and the state of instruction and education in the various schools and institutions specially devoted to the care of the blind. He then discusses what reforms are regarded as proper to attempt for the improvement in the prophylaxis and treatment of blindness from whatever cause. A large proportion of the cases of blindness in Spain he finds due to the ravages of small-pox, owing to the strong prejudice that prevails in some of the provinces against vaccination. Aragó found that blindness occurred in a larger proportion of cases in men than in women. He found that the proportion of blind persons in the population was greater in Spain than in any other country of Europe, except Norway and Finland. He takes up separately the various diseases of the eye leading to blindness, analyzes the statistics of asylums and hospitals for the blind as to the percentage of cases of blindness due to each of these diseases, and indicates the proper prophylactic and therapeutic means to prevent this unfortunate result. The monograph, though short, is practical, and appeals directly to the common sense of the governing bodies of cities, towns, and communes, and its hints ought to bear good fruit in the future. All of the author's suggestions might well be brought home closely to us in this country. The percentage of blind persons in the United States is a large one, as our various asylums show, and a very large number of their inmates are blind and incapable of self support simply from carelessness and ignorance on the part of their parents or friends at the time when the eyes of these patients were first affected. A very large proportion of the inmates of asylums for the blind are blind as the result of the purulent conjunctivitis of infancy, or of the conjunctivitis and keratitis produced by small-pox. Better care and knowledge are now exercised in the treatment of these cases, but there is still great room for improvement.

A Treatise on the Diseases of the Nervous System. By WILLIAM A. HAMMOND, M. D., Surgeon-General, U. S. Army (retired list), etc. With 112 illustrations. Seventh edition, rewritten, enlarged, and improved. New York: D. Appleton & Co., 1881. Pp. 929. [Price, $5 cloth; $6 sheep; $6 half Russia.]

ALTHOUGH this edition of Dr. Hammond's well-known treatise contains only some forty more pages than its predecessor, it includes a considerable amount of added matter, consisting chiefly of a chapter on myxœdema and of others on syphilitic affections of the nervous system, on the symptomatology of cerebral and cerebellar lesions (with a translation of Nothnagel's diagnostic points), and on diseases of the sympathetic. For much of the new matter the author gracefully acknowledges his indebtedness to the editor of the French translation of his work, M. Abadie Lagrave. Room has been made for this additional matter by omitting the chapters on insanity, on which subject a special treatise by Dr. Hammond is announced. Besides these additions, many parts of the work have been amplified, and all of them have been brought up to the present state of neurological science.

It would be out of place to attempt a critical and analytical review of this great work, it is so well known to the profession, not only in this country, but wherever neurology is studied. There can be no doubt that this edition will at once take the commanding position that has so long been held by preceding editions—a position well earned by the author's vast experience, profound learning, cleverness of style, and accuracy of statement. The mechanical get-up of the volume is beautiful, and we have noticed but very few printer's errors—among them we may mention "Von Graefe" for *von Graefe*, and "Ashurst" for *Ashhurst*.

Clinical Lectures on the Diseases of Old Age. By J. M. CHARCOT, M. D., Professor in the Faculty of Medicine of Paris, etc. Translated by Leigh H. Hunt, B. Sc., M. D., etc. With additional lectures by Alfred L. Loomis, M. D., Professor of Pathology and Practical Medicine in the Medical Department of the University of the City of New York, etc. New York: William Wood & Co., 1881. Pp. xv–280. [Wood's Library of Standard Medical Authors.]

MANY of these lectures of M. Charcot's were delivered years ago at the Salpêtrière Hospital. They show wide research, much learning, and familiarity with the works of many authors. The first lecture, although flowery in style, is admirable in its consideration of the subject of empirical and scientific medicine. Then a chapter is given to the febrile state in the aged and its significance. Then follow nearly one hundred pages on gout, certainly a large space devoted to gout when the whole book contains only two hundred and eighty pages. Due credit is given to Garrod and his researches on the subject. A small space is given to rheumatism, chronic and acute. These, with the lectures on gout, constitute the great bulk of M. Charcot's part of the work.

Dr. Loomis's lectures occupy seventy-one pages. Five chapters are given to diseases of the respiratory and circulatory systems. Strange to say, Dr. Loomis has a chapter on cerebral hæmorrhage and one on cerebral softening, notwithstanding the fact that Charcot has devoted special attention to diseases of the brain and nervous system. All the lectures by Dr. Loomis are clear and distinct, and, although not always accurate, they certainly give the reader the impression that the lecturer is entirely familiar with his subject. The book as a whole is a valuable addition to our medical literature.

The Mother's Guide in the Management and Feeding of Infants. By JOHN M. KEATING, M. D., Lecturer on the Diseases of Children at the University of Pennsylvania, etc. Philadelphia: Henry C. Lea's Son & Co., 1881. Pp. 118.

FOR a long time, when mothers have asked for a small book to guide them in the care of infants, we have been at a loss to know what book to recommend. Chavasse is too bulky, and needs too much modification to be satisfactory. Some books on the subject, instead of merely instructing the mother how to be a good nurse, try to teach her how to be a physician. Dr. Keating has produced a book small in size, written in pleasant style and in language which can be readily understood by any mother, eminently practical, and safe; in fact, a book for which we have been waiting a long time, and which we can most heartily recommend to mothers as *the* book on the subject. There are some points on which we would differ with the author. We do not think so highly of condensed milk as he does. We would condemn it except in cases of absolute necessity. He says, too, "Cold baths are never indicated in cholera infantum until this dreaded disease has resisted other treatment." Cold baths are now accepted as almost the sheet-anchor in the treatment of this disease when high temperature is present. The author would have a child bathed every day in a bath-tub and sponged off at night. We believe that is too much bathing unless it be in summer, when the bath is given to cool the body and act as a sedative. Twice a week, or at the most three times a week, is sufficiently often, except perhaps about the buttocks. But we say, again, it is the best book we have on the subject, and we shall unhesitatingly recommend it to mothers.

Dangers to Health: a Pictorial Guide to Domestic Sanitary Defects. By T. Pridgin Teale, M. A., Surgeon to the General Infirmary at Leeds. Third edition. London: J. & A. Churchill, 1881. Pp. xix–170.

The late Mr. Tweed is reported to have cared little for the written diatribes of the press, but to have expressed a decided dislike for the illustrated papers, on the ground that, while comparatively few of his supporters could read, everybody could understand pictures; therein, perhaps, unconsciously paraphrasing an observation made by sundry literary persons, from Horace downward. To this directest method of reaching the popular understanding Mr. Teale has resorted in the excellent little book before us, which portrays in unmistakable form and color many of the defects in house-drainage and plumbing work from whence arises much of the illness of so-called civilized life. Most of the drawings illustrate faulty conditions actually discovered in dwellings of the supposedly better class; nearly all of them depict imperfections which are unfortunately common wherever misnamed "modern improvements" are left to the untutored ingenuity of the "practical" builder and "practical" plumber. In a few instances the explanatory letterpress is marred by careless proof-reading—notably in the text to plate xxi, wherein almost all the letters of reference are misplaced. These errors, however, can hardly mislead a reader of ordinary intelligence, as the drawings explain themselves. We trust that this eminently useful book may obtain a wide circulation, not only in our own profession, whose highest function is to study and avert all causes of disease, but among the general public, which often sits in ailing ignorance of dangers easily avertible when once detected.

Manual for the Physiological Laboratory. By Vincent Harris, M. D. (Lond.), M. R. C. P., Demonstrator of Physiology at, and Casualty Physician to, St. Bartholomew's Hospital, etc., and D'Arcy Power, B. A. Oxon., Assistant Demonstrator of Physiology at St. Bartholomew's Hospital, etc. New York: William Wood & Co., 1881. Pp. 124.

This is not a manual in the ordinary sense of the word, but rather a series of memoranda upon the details of work in the microscopical and physiological laboratory. Condensation of expression, especially in the section devoted to physiological chemistry, has been carried to the greatest degree compatible with intelligibility. The chemistry of the urine, for instance, is disposed of in three pages. To our thinking, indeed, in this portion the work of condensation has been carried too far. In the section upon histology and in the introduction, upon the methods of microscopical work, the same fault is not present to the same degree. In this portion each organ is taken up in order, and a brief sketch of its minute structure is given, together with the method of preparing it for examination. Here the work of abstracting has been well done; the statements, though exceedingly concise, are generally clear and accurate, and one who is already versed in practical work with the microscope will doubtless derive benefit from their perusal. The book is, however, much too condensed to fit it for general reading, or to serve as a basis for independent work. It will find its appropriate place as a supplementary manual to the teaching of the instructor in the laboratory, where it will obviate the necessity of note-taking, and will be useful as a book for future reference and as a guide to subsequent study.

Sur l'Emploi de la Méthode Galvanocaustique dans le Nez et le Pharynx. Remarques présentées à la Sous-section de Laryngologie dans la 7^e session du Congrès International des Sciences Médicales (Londres, Août, 1881). Par Victor Lange. Copenhague: Bianco Luno, 1881. Pp. 14.

Dr. Lange, in this short and very well-written monograph, arrives at the following conclusions concerning the use of the galvanic cautery in affections of the nose and pharynx: 1. In operations for the removal of nasal polypi it is not generally necessary, as the cold wire suffices in the majority of cases; but it is preferable to all other methods for cauterizing the stump and completing the treatment. 2. It should be considered as the great remedy for tumefactions of the mucous membrane and polypoid degenerations. 3. It is often of great service in the treatment of lupus of the nose, especially when the sharp spoon or scarifications are powerless to cause a disappearance of the infiltration. 4. It is useful in those cases of hæmorrhage in which the bleeding comes from a single point, while it is generally insufficient in those in which it comes from a more extensive surface. In affections of the pharynx: 1. It is not generally necessary to resort to it in cases of hypertrophy of the tonsils. 2. It should be regarded as the chief remedy in cases of granulations and tumefied folds of membrane. 3. In adenoid swellings it is chiefly useful in the supplementary treatment—that is to say, in smoothing and leveling the walls of the naso-pharyngeal cavity.

Chemical Analysis of the Urine, based in part on Casselmann's "Analyse des Harns." By Edgar F. Smith, Ph. D., Asa Packer Professor of Chemistry in Muhlenberg College, and John Marshall, M. D., Demonstrator of Chemistry, Medical Department, University of Pennsylvania. With illustrations. Philadelphia: Presley Blakiston, 1881. Pp. 104. [Price, $1.]

This little book presents the subject of urinary analysis from the point of view of the chemist rather than of the clinician. In accordance with this plan all the principal methods for estimating each of the urinary constituents are briefly described, while the clinical deductions to be drawn from the examination are only touched upon incidentally. Considerable space is also given to the analysis of urinary sediment and concretions.

We are glad to see that the authors give special prominence to the hypobromite method for the estimation of urea, which in our own experience we have found very serviceable and easy of application. The condensed style of the work and its employment of technical phraseology unfit it, in our judgment, for use as a text-book for the beginner; but as a companion in the laboratory, or as a manual of reference for those who have already pursued a course of urinary analysis, it will prove of good service. The illustrations are well done; and in point of clearness of expression and accuracy of statement the book leaves little to be desired.

Books and Pamphlets Received.—A Manual of Organic Materia Medica. Being a Guide to Materia Medica of the Vegetable and Animal Kingdoms, etc. By John M. Maisch, Phar. D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. Philadelphia: Henry C. Lea's Son & Co., 1882. Pp. xv–25 to 459, inclusive. ═══ Epilepsy and other Chronic Convulsive Diseases; their Causes, Symptoms, and Treatment. By W. R. Gowers, M. D., F. R. C. P., Assistant Professor of Clinical Medicine in University College, etc. London: J. & A. Churchill, 1881. Pp. xiv–309. ═══ Sensation and Pain. By Charles Fayette Taylor, M. D. New York: G. P. Putnam's Sons, 1881. Pp. 77. [Price, 75c.] ═══ The Opium Habit and Alcoholism, etc. By Dr. Fred. Heman Hubbard. New York: A. S. Barnes & Co. Pp. viii–259. ═══ A Pocket-Book of Physical Diagnosis, for the Student and Physician. By Dr. Edward T. Bruen, Physician to the Philadelphia Hospital, etc. Philadelphia: Presley Blakiston, 1881. Pp. 256. [Price, $2.] ═══ Indigestion and Biliousness. By J. Milner Fothergill, M. D., etc. New York: Bermingham & Co. Pp. 89. [Library of Medical Classics.—Price, 35c.] ═══ Aids to Rational Therapeutics. By J. Milner Fothergill, M. D., M. R. C. P. New York: G. P. Putnam's Sons, 1882. Pp. 121. [Students' Aids Series.—Price, 25c.] ═══ Nervous Diseases; their Description and Treatment. By Allan McLane Hamilton, M. D., Fellow of the New York Academy of Medicine, etc. Second edition. Philadelphia: Henry C. Lea's Son & Co., 1881. Pp. 598. ═══ Hand-Book of Physiology. By W. Morrant Baker, F. R. C. S., Lecturer on Physiology, and Assistant Surgeon to St. Bartholomew's Hospital, etc. Tenth edition. Philadelphia: Presley Blakiston, 1881. Pp. xvi–862. [Price, $5.] ═══ Transactions of the New Hampshire Medical Society, 1881. ═══ Transactions of the American Dermatological Association, 1881. ═══ Annual Report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States, for the fiscal year 1881. ═══ Estirpazione Totale dell' Utero per la via della Vagina. Asportazione attraverso la Vagina d'Enorme Fibroma Sotto-sieroso Uterino sviluppato nel Legamento Largo Sinistro. Eseguite da Caselli Azzio. [Reprint.] ═══ Cefaloematoma Diffuso Traumatico; Emorragie Successive; Trasfusione di Sangue nel Peritoneo; Guarigione. Storia di Caselli Azzio. [Reprint.] ═══ Caso di Tumore Tubercolare della Midolla Allungata. Pel Prof. Francesco Orsi. [Reprint.] ═══ In addition we have received a number of pamphlets, the separate acknowledgment of which is prevented by lack of space.

Proceedings of Societies.

AMERICAN MEDICAL ASSOCIATION.

(*Concluded from December Number.*)

Second Day, Wednesday, May 4th.

CALCIFIED UTERINE TUMOR.—Dr. FRANK C. LARIMORE, of Mount Vernon, Ohio, presented a so-called uterine calculus, removed post mortem from the body of a woman seventy years old, the mother of five children, the youngest being forty-two years old. Two years after the birth of her youngest child she began to suffer from prolapsus uteri. The tumor filled the uterus entirely, weighed four pounds and one ounce, and doubtless was a fibroid which had undergone calcareous change. There was no true bone in the shell. ═══ Dr. HENRY O. MARCY, of Boston, inquired if a uterine fibroid had a true capsule, and, if thus encapsuled, how early in the development of the fibroid was the capsule found, whence was its origin, and what was its early histological development. If at the beginning it was only hypertrophic bundles of uterine muscular tissue, its connection would obviously be so intimate as to preclude its enucleation; otherwise, surrounded by a capsule to which it was loosely adherent, it would the earlier be amenable to surgical treatment. ═══ Dr. A. DUNLAP, of Springfield, Ohio, doubted the existence of a true capsule. A covering formed of connective tissue was found, produced as the result of pressure made by the growth against the muscular fiber, but there were no blood-vessels passing directly through this covering into the tumor itself. ═══ Dr. E. S. DUNSTER, of Ann Arbor, Michigan, thought that Dr. Dunlap's explanation was limited to those tumors which were originally interstitial. ═══ Dr. DUNLAP believed that it was more applicable to growths situated just under the mucous membrane and near the peritoneal surface than to intra-mural tumors, because then they pushed directly outward, and the tissue out of which the covering was formed was directly at hand. ═══ Dr. MARCY stated that in his experience it had usually been easy to separate the fibroid from its uterine connection, and that in their attempted removal the danger from the hæmorrhage lay in the divided uterine tissue which surrounded the tumor, rather than in the connection of the tumor to the uterus; that the capsule was probably due to the proliferation of the connective-tissue stroma of the uterus under the irritation of the growing mass, which was thrown out as a wall or barrier to protect the surrounding tissues in a measure. ═══ Dr. DUNLAP thought that fibrous tissue was not so abundant early as later, but, fortunately, the cases in which surgical interference would be justifiable when the tumor was small were very exceptional, because so many of them ceased to grow, and the patients lived for years afterward without special symptoms. ═══ Dr. JOHN BYRNE, of Brooklyn, had failed entirely to find anything deserving the name of a true capsule. There was a dense investing membrane. ═══ Dr. SMITH thought it could scarcely be claimed that there was a capsule specially belonging to the tumor itself. An entirely distinct investing tissue existed, and apparently it was formed by the pushing forward of the parenchyma of the uterus, condensing and apparently laminating it, without any change of elemental tissue.

The tumor could easily be pulled out from its investing membrane. After making an opening through this covering, ergot might cause expulsion of the entire mass. ═══ Dr. A. F. Erich, of Baltimore, said that the practical question was, whether or not interstitial uterine fibroids were easily removed. If the tumor and the uterine tissue communicated directly with each other, the growth could not be readily removed; but so long as they did not have any such direct union, enucleation was frequently practicable, and also advisable. There was always a kind of capsule—sometimes thick, sometimes thin—but whether a true capsule or not, mattered but little. ═══ Dr. Maughs thought that some of these tumors were encapsulated. A small fibroid had but little separation from the uterine tissue, while large ones were quite well separated, and could be enucleated. ═══ Dr. Dunster said that, after all, this discussion was only a war of words, for if by a capsule was meant a distinct histological structure of definite and constant character, probably all would admit there was no such thing; but, if the term meant only a condensed investing tissue or membrane, its existence must be admitted.

Uterine Dilators.—Dr. Wilson exhibited a set of uterine dilators which he had devised for use when a small amount of additional dilatation was an object, and at the same time it was desirable to avoid the further use of laminaria or other tents, for example, in cases of retained placenta, placenta prævia, intra-uterine fibroids, puerperal eclampsia, etc. They consisted of two large non-elastic blades, one shutting completely into the other, thus diminishing the size and consequently facilitating the introduction of the instrument. He had used various kinds of tents, but had not employed sponge tents during the last five years. He had not seen evil results from the first so much as from the second sponge tent, which latter he had seen followed by very serious results. Forcible dilatation without the further use of tents of any kind he regarded as very desirable in certain cases. In abortion he advocated immediate removal of the placenta, and not waiting for it to come away, perhaps at the end of one or two, or many more days; and therefore he anæsthetized his patients and gently dilated the os when it was not sufficiently open. In such cases he had found the instrument presented very serviceable. ═══ Dr. Cole believed that the parenchyma of the uterus in a large majority of cases was so injured by the use of rigid dilators as to result in active inflammation, and therefore he was totally opposed to employing them. The worst cases of pelvic cellulitis he had ever seen were the result of forcible dilatation with unyielding dilators. In the use of all dilating tents, whether tupelo, sponge, or laminaria, the dilatation was so gradual that the uterine tissue yielded readily without giving rise to pain, which he thought was the prominent evidence of the beginning of inflammation. It was a cardinal principle to subdue pain, lest inflammation result. To make these rigid dilators effectual, there must be a breaking down of tissue, in most cases, so constant and great as to be very liable to be followed by inflammation. The sponge or tupelo tent could be employed with greater safety than forcible dilatation with rigid dilators. He had heard much, and read a great deal, of bad results following the use of the sponge. Dr. Pallen had made the same assertion as Dr. Wilson had, that the use of the sponge tent was liable to result in septicæmia, but the speaker did not believe it. During the last twenty years he had used the sponge tent daily almost, and had not yet seen a case of septicæmia as a consequence, except in one instance, and then the woman went directly from his office and threw herself into a cold bath. ═══ Dr. Mundé admitted that the instrument exhibited by Dr. Wilson was powerful, but he had seen such good results from the use of a similar one in Europe that when he returned he brought a set with him, and had since used them frequently, and still continued to do so. He had, probably, dilated a thousand times, in several hundred different women, and had yet to see the first case of inflammatory action as the result. He had not used sponge tents so freely as Dr. Cole had, nor did he propose to, for they produced decomposition of the discharges, and for that reason Dr. Wilson had proposed the use of the instruments exhibited. He regarded them as serviceable in the management of certain cases of abortion and uterine fibroids, also when it was desired to clear the uterine cavity of vegetations, etc. In all cases in which hyperæmia of the uterus existed, septicæmia and local peritonitis were much more liable to be produced by the use of a sponge tent than by such dilators as Dr. Wilson's. He had used the tupelo tent extensively, and one special advantage it had was that it did not become offensive. He believed that Dr. Cole's experience in the use of the sponge tent was exceptional. ═══ Dr. A. F. A. King, of Washington, said that doubtless it made an impression as if something was done to save the woman from septicæmia and other grave consequences following abortion when such an instrument as Dr. Wilson had exhibited was introduced and a placenta removed; but, in very many, if not in most cases, administering a purgative or an emetic (making the patient sit up during its operation) was equally effectual, and in that way the danger incident to instrumental interference was avoided. He believed that dilatation of the cervix for the removal of the placenta after abortion was done too frequently. ═══ Dr. Erich could not indorse the views of Dr. King. True, too much was done in many cases, but the opposite extreme should also be avoided. He opposed recourse to forcible dilatation at the beginning, preferring to use tents first. The small amount of dilatation frequently wished for after the use of sponge or tupelo tents could be secured with Dr. Wilson's instrument without special danger. Forcible dilatation from the beginning with unyielding instruments was very likely to lacerate the tissues and give rise to inflammation. ═══ Dr. Robert Battey, of Rome, Georgia, said that too little *vis medicatrix naturæ*, and too much mechanical and operative interference, was the tendency of the present age. Opportune use of instruments in competent hands was justifiable, and the criticism was applicable to the head and the hands by which they were used. ═══ Dr. Smith differed with Dr. Wilson. His observation concerning forcible dilatation with metallic instruments had been very unfavorable, and he must say that he had never resorted to rapid forcible dilatation in such cases of abortion as Dr. Wilson had mentioned. He had, however, seen cases in which metallic dilators had been used by experienced and thoroughly conscientious practitioners, and he had seen septicæmia, pelvic cellulitis, pelvic abscess, and death occur in the same cases. He did not agree with Dr. Mundé that it was an instrument specially adapted to the cases for which it had been recommended by Dr. Wilson, because in those very cases it was most dangerous. The danger in making rapid dilatation was not so much from the development of inflammation resulting from pressure, as suggested by Dr. Cole (because painful pressure could be produced altogether consistent with safety), as it was from minute lacerations resulting in the development of septicæmia. In all of Dr. Wilson's cases referred to there was likely to be a discharge of broken-down tissue, and in all the cases in which he proposed the use of the instrument septicæmic discharges were liable to be present. Now, in the first place, the instrument, even in careful hands, did not indicate the amount of tension brought to bear upon the tissues, and no rule could be given concerning the amount of tension which the tissues would bear, because it varied so much in different cases. In the second place, it was well known how easily the torn uterine tissue absorbed septic material. Even gentle dilatation, such as that made by the bag of waters, might give rise to minute lacerations of tissue which would permit of the absorption of poisonous material. He thought it unnecessary to dilate the os with instruments in abortion. He had not seen a case in which, while the patient was anæsthetized, he had not been able, by external pressure, to force the uterus down within reach of the finger in the vagina and to bring his finger to bear upon the contents of the uterus. The sponge tent, like any other means, might do an immense amount of harm; but he thought the reason why it had done so much injury was because it had been carelessly used, not properly disinfected, or dragged out too soon, thus leaving an open surface ready to absorb poisonous material. If a sponge tent was thoroughly disinfected before being used, the vaginal cavity thoroughly washed out during its presence, and it was left in position for forty-eight hours, it could be removed free from odor and without laceration of uterine tissue. He employed sponge tents with a large point, cylindrical to the end, covered the surface with soap, gave them in addition a thick coating of salicylic acid, introduced them quickly, when ready, with strong forceps, and allowed them to remain forty-eight hours. If so used, he believed they would produce but little trouble; but he would never use them in pregnancy. ═══ Dr. **Maughs** agreed with Dr. Smith in nearly every particular. The instruments were formidable. There was scarcely a case of abortion in which the contents of the uterus could not be reached with the finger. He preferred the laminaria or sponge tent and the water-bag dilator. Tents were not so very dangerous. He had used the sponge tent for a great many years, and could say that he had not had any case in which he had been uneasy concerning it. His method was to dip the tent into a solution of carbolic acid in glycerine, introduce it, allow it to remain for eight hours, then remove it and introduce another, and *not introduce the third tent at once*, but wait a day or two. If, however, it was desirable to obtain access to the uterine cavity immediately, he used the water-bag dilator where the second sponge tent had not produced sufficent dilatation. ═══ Dr. **Marcy** said that the laminaria and other tents began to dilate where the resistance was least; as a consequence, they filled the uterine cavity before they stretched the constricted cervix, and therein lay one of the greatest dangers in the use of tents. The cervix uteri was fairly tolerant of forcible dilatation with aseptic material, and his experience in the use of elastic tension from below upward upon the cervix, leaving the uterine cavity unirritated, had continued to be favorable. This manipulation did not cause inflammation. ═══ Dr. **Wilson**, in closing the discussion, said that the fact that all instruments might do harm could not be used as an argument against them when properly used. He thought that Dr. Smith's objection to the metallic dilators, on account of their furnishing an opportunity for the absorption of septic material, was equally if not more applicable to the sponge tent; for he had not seen one removed at the end of twenty-four or forty-eight hours that was not more or less stained with blood, showing that laceration of tissue had occurred. He had never inserted a sponge tent that did not give rise to more or less pain, which, according to Dr. Cole, rendered the patient especially liable to acute inflammatory action, and yet Dr. Cole was an ardent advocate of the sponge tent.

By the use of his metallic dilators nothing more was done to lacerate the mucous membrane, and with antiseptic treatment afterward all the advantages afforded by any other method of dilatation were gained. The instrument he presented was designed solely for secondary dilatation, in cases in which the uterus was dilatable, and where a little more dilatation than that already secured by other means was desirable.

Third Day, Thursday, May 5th.

THE DIAGNOSIS OF PREGNANCY IN THE EARLY MONTHS.—Dr. JOSEPH TABER JOHNSON, of Washington, read a paper on this subject. "Can we," he asked, "make a positive diagnosis previous to the development of the fœtal heart-sounds and the detection of fœtal movements?" He then discussed thoroughly all the symptoms of pregnancy heretofore mentioned by writers on obstetrics. It had been claimed that in the softened condition of the cervix uteri, and the purplish color and increased temperature of the vagina, we had quite positive diagnostic evidence of pregnancy. It was admitted by all that the only positive and indisputable signs were furnished by auscultation, ballottement, and fœtal movements; but those signs were not usually present in the first half of pregnancy. The presence of kiesteine in the urine and of milk in the breasts, the odor of vernix caseosa upon the finger as it was withdrawn from the vagina after a digital examination, the smooth condition of the anterior wall of the vagina and anterior cul-de-sac, associated with a purplish or violet color of the vaginal mucous membrane, the placental souffle, the existence of *gravidene* in the urine, the presence of certain caseous elements resembling milk in the urine—were all reviewed. The conclusion which he reached was that there were no symptoms, either digestive, nervous, mammary, pigmentary, vaginal, or cervical, or changes in the blood, the milk, or the secretions, which could be accepted as positively distinctive during the first half of pregnancy. The evidences of pregnancy obtained by auscultation, by ballottement, and by fœtal movements were, by general acknowledgment, the only positive ones, and those could not be obtained until utero-gestation was well advanced. Bimanual palpation presented the most certain and satisfactory means of ascertaining the existence of pregnancy during the first three or four months, but it was not always decisive. ==== Dr. COLE said that the only unequivocal sign of pregnancy was the pulsation of the fœtal heart, and that might be simulated by the sound in the blood-vessels caused by the pressure of a tumor, and particularly was that true with reference to placental souffle. He knew of no absolutely positive sign of pregnancy in the early months, and his only guide had been to accept two or three of those rational symptoms and physical signs which strengthened the suspicion or conviction of the existence of pregnancy. He then related a case which ultimately proved to be one of suppurative pelvic cellulitis. ==== Dr. SMITH thought that until positive evidence of the existence of a living fœtus in the uterine cavity could be obtained, the ordinary rational signs of pregnancy should not be given too much significance. Too great caution could not be exercised when we were called upon to give an opinion in a case of suspected pregnancy. He thought there was no more unreliable sign of pregnancy than the placental souffle. In two cases in which it was doubtful whether pregnancy existed he had obtained valuable assistance by making thermometric observations, the temperature in the cervix uteri being higher than the sublingual. Undoubtedly in the early months the most nearly positive evidence was to be obtained by bimanual examination, by which the examiner might attain to almost a moral certainty. But, in his judgment, we had not the slightest right to state positively concerning the existence of pregnancy until the fœtus could be felt or heard in the uterine cavity. —— Dr. Mundé said that the bimanual was one of the very best methods of examination with reference to the question under discussion, and when he could get the fundus uteri between the fingers in the vagina and the hand outside, and then made out distinctly that the uterus was enlarged and had a spherical shape, and there were other signs of pregnancy, he was quite sure that condition existed, but was not positive; perhaps in nine tenths of the cases the conjecture would be correct. It was only by a combination of symptoms that an approximatively positive diagnosis could be made. —— Dr. Dunlap's reliance had been upon bimanual examination in making a differential diagnosis between pregnancy and fibroid tumors of the uterus. If necessary, he said, administer an anæsthetic and introduce the *hand* into the vagina, and in that way the differential diagnosis, he believed, could always be made. Without such procedure, the question, in many cases, was very difficult to solve; and, if it was necessary, he would not hesitate to resort to it in a young subject. —— Dr. Maughs believed that at the end of six or eight weeks it could be determined positively that pregnancy did not exist, and that the conclusion could be reached by bimanual examination. Suppose a woman believed herself pregnant, or was thought by others to be pregnant, and on vaginal examination the vaginal portion of the cervix was found small, conical, and firm or hard, without any thickening or softening, and occupying its normal position in the pelvis (i. e., with no descent of the uterus in the pelvic cavity), and on bimanual examination the uterus was found not more than two and a half or three inches in length—then the woman positively was *not* six or eight weeks pregnant. But suppose we found the vaginal portion of the cervix enlarged, softened, and thrown well back toward or against the posterior wall of the pelvis, and lower in the pelvic cavity than normal, and on bimanual examination we found the uterus four or four and a half inches in length without tenderness on pressure, while at the same time increased pulsation was felt in the vaginal arteries, with increased heat in the vagina—then, by a process of exclusion, we might say with almost equal certainty that the woman *was* six or eight weeks pregnant. He relied greatly upon the measurements of the uterus given for the different weeks of pregnancy. —— Dr. Erich disagreed with Dr. Maughs, because there were many cases in which the uterus was abnormally small prior to pregnancy, and therefore considerable enlargement could take place without affording, in the usual manner, evidence of pregnancy. If the examiner was perfectly familiar with the size and condition of the uterus in every individual case, perhaps he would agree with Dr. Maughs. The exclusion of pregnancy was frequently more important than a conclusion that it existed. The normal shape of the uterus, without enlargement, excluded pregnancy. The temperature test had not failed except where the general temperature of the woman was higher than normal, and he thought that with proper care the thermometer could be used without danger. —— Dr. Battey gave the following propositions: 1. A married woman living with her husband, missing her menses, was to be considered as pregnant until she was conclusively shown not to be. 2. A single woman of established good character, even though she missed her menses, was not to be accused of pregnancy until she was positively known to be pregnant. 3. A married woman, multiparous, living at home with her husband and children, of irreproachable social position, the subject of a large ovarian tumor, an invalid for two years, with the most irreproachable evidence of the absence of any attempt at sexual intercourse, might be the subject of pregnancy, and within five days of confinement and the birth of a dead fœtus. 4. A single girl, aged sixteen, of irreproachable character, belonging to one of the best of families, two years a bed-ridden invalid, under the constant supervision of her mother, might be the subject of pregnancy. ═══ The CHAIRMAN thought that the uterus was not spherical in pregnancy until the third or fourth month. By bimanual examination he understood the insertion of one or, better, two fingers into the vagina, one under the cervix and the other in front, while from above the opposite hand was crowded down into the abdomen, until an impulse was transmitted to the fingers in the vagina. He had noticed blueness of the vagina in many cases of pregnancy at various stages. He was disposed to attribute great value to it as a diagnostic sign when present, but thought that its absence had not equal weight against the diagnosis of pregnancy.

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(Continued from January number.)

The second part of the paper* referred to genital anakainosis—how it had been brought to its present high state of perfection. The extent to which the discussion had reached would prevent him from giving more than an epitome of the fourteen cases treated by him in the Woman's Hospital, with a statement of all of his cases, 120 in number, and a comparison of the results with those of Simon. The fourteen cases referred to he classified as follows: One urethro-vaginal fistule; two urethro-vesico-vaginal fistules; three vesico-vaginal fistules; six vesico-utero-vaginal fistules; one vesico-utero-cervical fistule; one urethro-utero-vesico-vaginal fistule. For 14 fistules, which existed in 14 patients, there were 18 operations performed. Thirteen fistules, which existed in 13 patients, were cured with preservation of function. One patient with one fistule left after preparatory work. There were 13 cures out of 14 cases, or 92·85 per cent.; operations for each cure, 1·38 per cent.; operations for fistulous closure, 1·38 per cent. Regarding the difficulties encountered, they could be appreciated when he stated that six of the number had resisted nine previous operations by Sims's method in the hands of four of the most eminent gynæcologists, and that in 12 of the cases kolpostenosis, ranging all the way from 20 to 70 mm., existed. There were two cases of incarceration of the cervix uteri in the bladder, which had to be disengaged, and one in which the whole vesico-vaginal septum, with a little of the anterior lip of the cervix uteri above, and a little of the root of the urethra below, had been destroyed. In a fourth case a large vesico-utero-cervical fistule was present, and the lower part of the cervix had to be taken out, with a part of the vesico-vaginal septum, being a new procedure. In all four of these cases complete genital renovation was secured and the lost functions were restored. At least six of the fourteen cases answered to Simon's indications for kolpokleisis. The percentage of success, 92·85, was probably the highest ever reached by any surgeon in such a series of cases. The result of his experience, commencing in May, 1855, when he adopted his new method, and ending with May, 1881, a period of twenty-six years, was as follows: For 150 fistules, which existed in 120 cases, 181 operations were performed; of these cases, 101 were cured by uniting the borders of the fistule, or direct operations with preservation of functions, or 84·16 per cent.; 2 were treated and ameliorated by genital kleisis, or indirect operations with sacrifice of functions, or 1·66 per cent.; average number of operations required for each case, 1·48, and for fistulous closure, 1·28; there were 4 deaths, or 3·33 per cent. Here was a number of cases exceeding Simon's by 15, the treatment of which began at the same time that he adopted kolpokleisis, May, 1855. He in Darmstadt, Germany, with this method in his hands, and the author in Montgomery, Alabama, with kolpostenotomy and kolpoecpetasis in his hands, entirely ignorant of each other's labors, and having been previously engaged in the same branch of practice. It would thus be seen that his percentage of cures during the twenty-six years exceeded Simon's 26·07 per cent., and was only 3·46 per cent. less than all his combined cures with kolpokleisis, with a rate of mortality almost one half less.

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* Dr. Bozeman's paper on "Genital Renovation," etc.

Forcible Elongation of Pelvic Adhesions.—Dr. **Ely Van De Warker**, of Syracuse, New York, began by saying that there was probably no other disease peculiar to women which afforded a darker outlook to the patient than that to which his paper related; not because of the danger of near or remote death, but because of its moral influence and impairment of physical usefulness. He then referred to the fact that the treatment of this condition had embraced, either directly or indirectly, almost every remedial procedure in the specialty of diseases of women, such as applications to the endometrium, the use of the sound, the uterine tent, operations on the cervix uteri, etc. His paper referred specially to the treatment of posterior pelvic adhesions, in which one marked symptom was pain on defecation. This symptom was supposed to be due to traction made upon the rectum by adhesions which existed between its anterior wall and the uterus. If the union between the surfaces of the uterus and rectum were so intimate that there could be no movement upon the parts below, there might be immunity from pain; or, if the adhesions were so elongated that movement might occur without taking up slack, there might be freedom from pain. His mode of operating in these cases was, first to etherize the patient, then quickly and forcibly dilate the cervical canal so as to enable him to introduce a sound of large size, with which he steadily and firmly turned the uterus forward until the fundus could be felt above the pubes. At the same time he forced the uterus upward, and in some cases this could be done to the extent of an inch, thus putting the adhesions still more on the stretch. The instrument which he used for this purpose was formed from a very large-sized male bougie. He did not believe in the use of the tent preparatory to the introduction of the sound; it was a dangerous complication of any surgical procedure when its use was necessitated. All operative procedures should be done at one time—an important point, which he had insisted upon before. The after-treatment consisted simply in keeping the patient in bed. No support to the organ was needed. In some cases it might be necessary to repeat the operation after two or three months. He had operated in four cases. In the first case there was no increase of pain or tenderness after the operation, and from the first considerable relief from pain at defecation was experienced, and in a few weeks all pain disappeared. In the second case there was considerable pain, which was allayed by an anodyne. In the third case, as in the first, there was no pain, no increase of pelvic tenderness. The fourth patient was not benefited by the operation; on the contrary, he thought some harm was done by the treatment, although the results were not dangerous; but the pelvic pain and pain in defecation did not seem to be relieved to any extent. His method of treating these cases was experimental; in the class of cases to which it referred he believed it would prove useful.

Dr. PAUL F. MUNDÉ, of New York, said he thought we ought not to allow this subject to be passed by without hearing the experience of some of our leading men regarding it. He, like all other gynæcologists, had seen quite a large number of cases of retroverted uterus with adherent fundus, and he had tried the method which the author spoke of, of dilating the cervical canal and then straightening the uterus, but he must say that it had not resulted in keeping the uterus up. After straightening the uterus, which was easily done, it always fell back immediately after withdrawing the sound; no permanent benefit resulted from it, either in the relief of symptoms or in keeping the uterus in position. On forcing the uterus forward with the sound the rectum would be dragged with it, but this was obviated to some extent by introducing the finger into the rectum. Not finding the finger long enough, he introduced a large bougie, but it required too great force to tear the fundus loose from its attachments, and he was afraid to go on with the operation. The cases in which he succeeded in lifting the uterus up he did not believe were really cases of adhesion, but simply cases of impacted retroflexion, if they might be so called. He should be afraid to use a great deal of force in cases of real adhesion, and if he did so he should not expect to succeed in lifting the uterus forward.

Dr. HENRY P. C. WILSON, of Baltimore, said that personally he was very much obliged to Dr. Van De Warker for bringing this subject before the society. He supposed no gentleman who had practiced gynæcology was not perfectly familiar with the frequency of such cases, and we all realized the difficulties under which we labored in replacing a retroverted uterus bound down by effusions of lymph in Douglas's cul-de-sac which had become organized. He had never been able in such cases to replace the uterus and keep it in position. He had never been in the habit of trying to reduce such displacements by the sound or any repositor. He had always felt that, if he had only one more phalanx to his index finger, he could then replace the uterus safely and without difficulty. He had been timid about using the sound or a repositor for forcible replacement of a retroverted uterus bound down by adhesions. In all ordinary cases he had reduced this displacement by elongating his finger with a small-sized Hodge's pessary. He inserted the pessary into the vagina, and by pressing gently the anterior bar of the double lever he gradually raised the uterus by the posterior bar pressing up the fundus. But he had always felt that, if in such cases he should replace the uterus twenty times a day, twenty times it would be displaced again; and his only object in reducing the displacement was to put its attachments upon the stretch from time to time and retain the uterus as nearly in position as possible, by introducing balls of cotton soaked in glycerine and water, with the view of ultimately keeping the uterus permanently in position by a properly-fitting pessary. He had never felt that we could overcome the difficulty at once by forcible replacement. At the same time that he tried to overcome the adhesions and replace the uterus, he used measures to promote absorption of the lymph which bound the uterus down, such as the local application of iodine to the posterior cul-de-sac, the use of hot water, etc.

Dr. A. REEVES JACKSON, of Chicago, said he was glad Dr. Van De Warker had brought this subject before the meeting, if it were simply to enable us to condemn the practice. He was convinced from his slight experience that the method which the author advocated would be ineffectual, or, if not, that it must necessarily be dangerous. He thought it impossible by this means to elongate any pelvic adhesions permanently. If the adhesions were elongated they must be broken, and he predicted that if the author continued this practice and extended his experience from four cases to forty, he would be ready to discontinue it. He quite agreed with both Dr. Mundé and Dr. Wilson that it was most desirable to elongate the adhesions, and thus liberate the uterus from its confined retroverted position, but he believed this was impossible. In the first place, it was impossible by the means advocated to replace the uterus permanently, on account of the flexibility of the anterior wall of the rectum. The rectum would necessarily follow the uterus, unless it also were bound down by inflammatory products. If forcible attempts were made to replace the uterus in the way advocated, he believed inflammation would be set up. He must, therefore, enter his feeble protest against the practice.

Dr. **George H. Lyman**, of Boston, said this subject was an important one, and, as everything said here went to the young men all over the country, he desired to hear a very free expression of opinion on the part of the older members of the society—those who had had more experience than he. There were one or two points, however, which he wished to allude to. In the first place, he did not believe it was possible for the uterus to be pulled forward far enough to reach its extreme limit against the pubes, as Dr. Van De Warker suggested, without doing some grave injury to the lining membrane of the organ. We were dragging this whole mass, the uterus adherent to the rectum, and the rectum doubtless also adherent, with a comparatively little point at the end of the sound introduced into the cavity of the uterus. If the patient were put under the influence of ether we lost one of our most valuable guards against harm, namely, the sensation of the patient. He did not believe that in such cases we ought to give ether, and this point he wished to emphasize. He was decidedly opposed to the procedure.

Dr. **George J. Engelmann**, of St. Louis, said he had had very little experience in this matter. He had always looked upon cases in which he had been able to raise the uterus with ordinary means as cases without adhesions, or with the most trifling adhesive filaments; and in cases in which he was not able to raise the uterus, he thought that it was bound down by adhesions. This question had been discussed to-day in a clinical way; if, now, they were to open the abdominal cavity and examine the adherent misplaced uterus, they would not be able to move the organ unless the adhesions were mere filaments. He had examined a great many such cases, and he had found that without using great force the uterus could not be straightened, and if that were done the adhesions would be torn. Certainly more injury would be done than the patient could bear, though she were etherized; inflammation would follow, and death would probably be the final result. It was only the recent bands of young connective tissue that had sufficient elasticity to be stretched; old or thick adhesive bands, which had formed months, perhaps years before, certainly could not be stretched in the living subject. But he thought the author probably did not refer to those severe cases in which the bands were firm and large, and both the ovary and the uterus were bound down to the rectum in the floor of the pelvis. He did not deny the possible existence of slight recent adhesions which could be elongated.

Dr. Bozeman said he had been very much interested in the discussion of Dr. Van De Warker's paper. The subject was one which had interested him for many years, and in the paper which he had read he referred to this very class of troubles, retroflexion with fixation of the uterus, and very often prolapsus of the ovaries. His attention had been directed to the subject a long time in connection with the complications of vesico-vaginal fistules; it was first called to it as far back as 1859, in a case of vesico-utero-vaginal fistule complicated with retroflexion, in which the fundus of the uterus was fixed against the rectum. His operation at that time consisted in making incisions through the vesico-vaginal septum from each angle of the fistule, for the purpose of disengaging the cervix uteri. He found that it was possible, after this preliminary operation, to overcome the malposition of the organ by passing cylinders into the vagina. He used sponge cylinders in oiled-silk bags for dilators and warm water, and kept up the treatment for weeks, and even for months, and he found it possible thus to restore the uterus to its proper position. For many years he had also been engaged in treating this class of cases, uncomplicated with fistules, by columning the vagina with carbolized cotton, a practice which he brought out in a paper presented to the society in 1878, and again in 1879. In many of these cases the uterus was so crowded down upon the vagina that the latter organ was shortened to two and a half inches, and the uterus was perfectly fixed; but by using columns of cotton, iodine, and the douche, the structures were softened, the uterus was lifted up, and the posterior vaginal wall attained its natural length, four and a half inches, or even more—five and a half, or six inches. The stretching of the posterior vaginal wall was one of the most important principles involved in the treatment of this class of cases, and the object to be effected thereby was not alone to raise the uterus and the ovary, and restore the organ to its natural position, but also to reach the broad ligaments, which, according to his experience, were thickened (one or both of them) as a result of cellulitis, and were the cause of the fixation of the uterus in its posterior position, instead of, as was generally believed, adhesions between the fundus of the uterus and the rectum. After this treatment, with a view of supporting the posterior wall of the vagina and raising up the uterus and ovaries, a Hodge's pessary, if a pessary could be used at all, was called for; but the uterus should be kept up for some time by columning the vagina before beginning the use of a pessary. As a substitute for Hodge's pessary as a means of mechanical support in these cases, he made use of a vaginal support which he described in a paper read before this society in 1878. This instrument was made of copper or steel wire, and was covered with India-rubber. It was perfectly elastic, and adapted itself to the requirements of the vagina. It consisted of two branches, a vesical and a rectal branch, the vesical branch varying in length from two and a half to three inches, corresponding to the vesico-vaginal septum, and a rectal branch varying from two and a half to four inches.

Dr. James R. Chadwick, of Boston, wished to protest against the practice recommended by Dr. Van De Warker, and also the doctrines enunciated by Dr. Engelmann, for he thought they represented two extremes. He had on record at his dispensary and his out-patient department at the Boston City Hospital about five thousand cases, of which number he would roughly estimate that at least seven hundred or eight hundred gave evidence of having, at some time, had pelvic effusions of greater or less extent. In a large proportion of these the indurations and adventitious adhesions had ceased sensibly to restrict the mobility of the uterus. In many cases, however, the inflammation had been so recent or so extensive that the uterus was more or less fixed. In a large proportion of this class, which was the only one under discussion, the uterus was retroverted. When the effusion had been so recent as to be still markedly both tender and hard to the touch, he carefully abstained from manipulation, having been convinced by experience of the extreme liability of such manœuvres to revive the old inflammation. If, however, the effusions had been so far absorbed and modified as to present a cartilaginous feel, either as tendinous bands or a diffuse thickening and induration of the peritonæum, and were no longer tender to the touch, he subjected them to manipulation and traction. This method of treatment differed from that advocated by Dr. Van De Warker in this vital respect, the amount of force employed. While Dr. Van De Warker deliberately used so great power as to break up adhesions instantaneously, Dr. Chadwick sought to avoid such violence, as almost certain to be followed by revival of the original inflammation, and contented himself with the stretching of adhesions, which he believed to be not only possible by persistent efforts, but likewise accompanied by increased absorptive changes. He did not think that Dr. Engelmann could justly argue that because adhesions in the dead body were very firm and unyielding, they of necessity resisted to the same extent these operative procedures in the living. His results satisfied him of the contrary. When the uterus was retroverted and adherent, he did not hesitate to exert a certain amount of power to raise it, repeating the process thereafter until the uterus was free. Of course in some cases it was so fixed as to yield no result. In a certain number, even, the greatest care and skill would not avert inflammatory attacks, but these were exceptional and never, in his experience, severe or fatal. As to the means of exerting the traction, he could see no possible good in dilating the cervix, and much possible harm. The sound he never used because it effected not only a change in the relation of the long axis of the uterus to that of the pelvis, but involved a displacement of the whole womb from the sacral hollow forward. The repositor, on the other hand, avoided this change of location, and yet most effectually corrected the version of the organ. In cases where the womb had been so firmly held as to seem immovable under the exercise of any prudent force he had frequently been surprised to note how greatly the symptoms were relieved by this practice. The power might then be best and safest applied to the organ by insinuating the index and middle finger of the hand *per vaginam* between the body of the womb and the sacrum and pushing the former toward the pubes. This method he had found to be far more efficacious in the erect posture, when gravity caused the womb to sink toward the vaginal outlet and the weight of the superimposed intestines to fall away from the uterus. Finally, he would disclaim for these methods any brilliant results, but would affirm his conviction that much might be accomplished by cautious, long-continued efforts in a class of cases fraught with great and often life-long suffering, and otherwise well-nigh incurable. Such force as Dr. Van De Warker employed he could not believe to be other than dangerous in the highest degree, despite the contrary evidence of his cases.

Dr. **Thomas Addis Emmet**, of New York, asked Dr. Bozeman whether any bad result had ever attended his method. ═══ Dr. **Bozeman** replied, not in a single case, although he had used this method for over twenty years, sometimes using hard dilators, sometimes sponge cylinders in oiled-silk bags, sometimes packing with cotton.

Dr. HENRY F. CAMPBELL, of Augusta, Georgia, said there were several mechanical obstructions to the replacement of the retroverted womb. Besides being bound down in its posterior position by adhesive material, the posterior wall of the vagina had become crimpled, contracted, shortened; and these obstructions were to be overcome by upward mechanical pressure, which would tend to lift up the womb and cause gradual absorption of the plastic material which had bound it down. His means for doing this was the use of the ring pessary, inserted in the genu-pectoral position, beginning with one of moderate size, and, as by wearing this the adhesions became gradually loosened, and the uterus could be lifted up higher, after a while he would insert a larger pessary, and so continue gradually to overcome the displacement. As in stricture of the male urethra the plastic material was of a provisional nature, and could gradually be made to disappear, so in these cases the adhesive material binding the uterus in its abnormal position was of a provisional nature, and its gradual absorption could be accomplished by mechanical pressure and stretching. He remarked by the way that he used the ring pessary more universally than any other, on account of its convenience and efficiency. He said, further, that the plastic material which sometimes—very rarely, he believed—retained the womb fixed in retroversion was, in his opinion, also constituted like those which stiffened as with starch and made permanent the folds of the shortened vagina, of the same kind of feebly-organized lymph, making a bond of very low vitality. Persistent stretching by elastic rings, gradually increased in diameter, together with the effect of gravity in the genu-pectoral posture, might in time gradually dissolve the bond and allow the fundus to revolve into its normal position. He said he could not, he thought, overstate the value of genu-postural manœuvres in the various displacements of the uterus.

Dr. ALBERT H. SMITH, of Philadelphia, thought the discussion might be simplified by making a distinction between fixation of the uterus and adhesion of the uterus. There might be fixation without adhesion, without previous disease of the surrounding tissues—fixation from habit. Suppose a young girl, thirteen or fourteen years of age, became the subject of retroversion or retroflexion; this continued year after year unchanged; the surrounding tissues adapted themselves to that condition, precisely as the arm when wounded and kept in one position tended to become fixed in that position. But, as fixation of the arm in this instance might be overcome by mechanical effort, so in the former instance fixation of the uterus might be overcome by the same means. It was not the same, however, in case of fracture, for here there was a disease. Then, in cases in which there was fixation from habit, he thought it could be overcome by mechanical means; in cases in which the uterus was bound down by adhesions he thought it could not be replaced except in a small proportion of cases, and any attempt at reduction would be apt to produce serious lesion. For fifteen years he had been in the habit of replacing the uterus by mechanical force, as Dr. Van De Warker had done, but in preference to the sound he used a flexible male metallic bougie. This instrument was perfectly round and smooth, could be made perfectly clean, and was least liable to do injury to the tissues. But he had recognized that in the cases of fixation from habit the uterus returned to its former position immediately after reduction if it were not maintained in proper position by mechanical support, and for this reason he formerly gave up this practice in this class of cases, to adopt it again more recently since he had learned to retain the uterus in its improved position by the stem pessary, and afterward to carry it up higher by a retroversion pessary. He did not believe, however, that in any of these cases there was fixation from disease or adhesions, but that it was due to habit.

Dr. J. MARION SIMS, of New York, said it was easy to tell whether there was flexure of the uterus, and the degree of flexure; whether the uterus was held at an angle of forty-five degrees, or whether it had fallen down upon the rectum; we could tell within a fortieth of a degree to what extent we could elevate it if there were adhesions, etc., but he was surprised to see that the gentlemen had used Simpson's sound and a modification of it. Twenty-five years ago he gave to the profession an instrument for the replacement of the retroverted uterus, and it was an instrument which he continued to use every day upon patients who were said to have adhesions between the uterus and rectum. Such cases, however, were rare, and the history of the case usually indicated what we might expect to find. Long malposition, or irreducible retroversion or retroflexion, could be diagnosticated by the shortening of the vagina, or great weight of the body of the uterus, etc. He then explained the construction of his instrument and the manner of using it. It consisted of a stem and a bulb, fastened into a handle. The bulb was introduced a certain distance into the uterus, and by proper manipulation that organ was returned to its normal position, where it could be retained by a pessary of proper shape. He had seen but twenty cases of permanent adhesions during his entire practice. The patient should not be etherized in such cases. He had been able to break up the adhesions in but one of these cases, and in that case the adhesions probably were not very strong. The patient was to-day wearing a pessary. He spoke of another case seen by himself, his son, and Dr. Wiley, in which the adhesions were not very extensive, but they broke up some of them and the patient had a mild attack of pelvic cellulitis afterward. She was no better for the treatment. He thought his friends here and in London made a mistake when they talked of replacing the retroverted uterus bound down by adhesions by mechanical pressure. Such cases were very difficult to cure, and very few were cured.

Dr. WILSON said there was no instrument more valuable than Dr. Sims's in cases in which the uterus could be replaced at once, but there were cases in which the uterus was set in organized lymph as if in hardened wax, and he could not understand how in such cases the organ could be replaced, except by gradually stretching the adhesions and causing absorption of the lymph.

Dr. WILLIAM GOODELL, of Philadelphia, thought there was a misunderstanding as to the meaning of the term adhesions. Dr. Chadwick had said that out of five thousand cases there were perhaps six or seven hundred with adhesions [Dr. Chadwick rose and said he meant traces of adhesive bands in Douglas's cul-de-sac], while Dr. Sims had not seen more than about twenty cases during his whole practice. Dr. Goodell said that during his entire practice he had not seen more than ten cases in which there were adhesions in the sense in which he understood that term, and in the sense conveyed by the pictures of Winckel, namely, an elongated band or bands stretching across after absorption of inflammatory exudation. The vast majority of cases sent to him as cases of adhesion were not such at all. They were cases in which the womb had been caught between the two utero-sacral ligaments. He recognized the cases referred to by Dr. Smith, cases of retroversion or retroflexion from habit; also those resulting from pelvic cellulitis or peritonitis, in which there was shortening of the vagina, referred to by Dr. Campbell, and there were cases also in which there was loss of that elasticity in the broad ligaments which served to keep the uterus in a natural position; but the cases in which there were true adhesive bands were very rare. In cases in which there was fixation of the womb, with adhesive deposit of lymph in the broad ligament, he thought Dr. Van De Warker's practice exceedingly hazardous, and he would never attempt to employ it. He once saw a woman treated by Dr. Van De Warker's method for some other condition, she being a patient of the late Dr. George Pepper's, and she nearly lost her life. But in cases in which there was hardening and thickening of the broad ligament, with loss of elasticity, we were warranted in using various methods to shore up the womb. Sometimes the elastic pessary would prove useful by promoting absorption, and by elongating the vagina and broad ligament.

Dr. VAN DE WARKER, in closing the discussion, said he dilated the uterine canal simply to enable him to pass a large sound. He did not rise to defend his paper, for it was presented for the purpose of eliciting comment, and the tenor which the discussion had taken was to be expected when we considered how thoroughly conservative such a body of men must be. The paper had done what he expected it would do; it had called out a free expression of opinion. He said the operation was not performed merely for the purpose of releasing a fixed uterus, whether retroverted or anteverted, for any one who was familiar with these cases knew very well that they were not cured so easily as that would imply; but it was for the treatment of a particular class of cases, which he believed to be very rare. Most of the cases referred to by the gentlemen in the discussion did not belong to this class at all, and they got well of themselves. He still believed that the adhesions to which he had referred could be stretched, and that it could be done by a to-and-fro movement of the uterus, and he thought the figures of Winckel went to prove that fact. Notwithstanding the adhesions which incarcerated the uterus were stretched, the retroversion still remained, and that was expected as a matter of course. In cases in which the uterus was thoroughly fixed to all the neighboring parts, as occurred in so-called cellulitis, there was no occasion to attempt elongation of the adhesions, and it was to be presumed of course that it could not be done. There was no demand for it, because the symptoms did not call for it; there was no pain in defecation. Slight movement of the uterus was impossible, and without such slight movement pain in defecation was impossible. It was only in cases in which the uterus was not thoroughly and immovably adherent to the parts that we got that severe set of symptoms which demanded this treatment. As to the objection offered against the administration of ether, one was not going to exert more force in the operation with the administration of ether than without, and he should understand beforehand the amount of force which he might use. But these cases did not require a great degree of force to lift the uterus from its bed. He wished there might be a clear understanding of the scope of his paper; his operation was simply to relieve a class of symptoms which by their constant wearing on the health of the patient jeopardized her life, and without some means of this kind were resorted to she could not be relieved. The gentlemen seemed to think that in all of these cases the uterus was retroverted or retroflexed. He was confident that in two of his cases the fundus, if attached at all, was attached by long adhesions; but the cervix was closely bound down and fixed, and consequently the uterus was not in a retroflexed position; but after it was pulled forward the pain in defecation disappeared.

THE PRESIDENT'S ANNUAL ADDRESS.—Owing to the illness of the President

Dr. WILLIAM H. BYFORD, of Chicago, the address was read by the Secretary, Dr. Chadwick. The President thanked the society for the honor conferred upon him, and then spoke of gynæcology as an associated branch of medicine, believing that it was even more comprehensive than surgery and some other branches, and that the term specialty should not be applied to it. Even yet in some of the large hospitals in the world gynæcology had not been given its proper place, this department of medicine still being included under the general one of surgery; nevertheless, it had justly become popularized by the writings of many eminent men who had devoted their life's work to the study of diseases of women, and it was now fast taking a position even in advance of general surgery. He then referred to the first meeting of the society in New York, and its organization. The scientific work of the society had been well sustained. The experiment of meeting in western cities had not proved a success, and he thought it best in the near future to continue to meet in some of the larger cities on the seaboard. The social aspect of the meetings he considered not their least valuable feature. The five handsome volumes of transactions lying upon the table attested the industry, unity, and ability of its members, and the favorable criticism of the medical press at home and abroad showed that their work was appreciated. The American Gynæcological Society was to America what the Obstetrical Society of London was to Great Britain. The main portion of Dr. Byford's address was devoted to the consideration of the establishment of a McDowell fund, in recognition of the great benefit conferred upon the human race by the operation of ovariotomy, which owed its discovery to the late Ephraim McDowell, of Kentucky. The recognition which the profession had already given to the labors of this man had been chiefly confined to the medical profession of his own state. The President's plan proposed that all ovariotomists, and those interested in this operation, should have an opportunity to contribute to a fund, the interest of which could be used as prize money for essays. One feature of his plan was that every ovariotomist should contribute either five or ten dollars of his fees from each operation. Whether the plan which he suggested should be carried into operation or not was of less importance to him than that some plan, well devised and matured, should be put in operation in recognition of the labors of one who might justly be called the father of ovariotomy. In his closing remarks the President congratulated the society upon the success attained in its special department of work.

ESTHIOMÈNE, OR LUPUS OF THE VULVA.—Dr. ISAAC E. TAYLOR, of New York, read a paper on this subject, accompanied by colored drawings. The disease had long been recognized, but it was rarely seen upon the genital organs. It had passed under different titles, but that under which it was most commonly recognized at the present day was lupus. The pathological changes did not differ, whether it appeared upon the genital organs or other parts of the body. Dr. Taylor reported seven cases, two of which were cured, two relieved, two unrelieved, and in one of which the patient died. He spoke of the history of the disease, and of the various theories regarding its nature, whether it were scrofulous, epitheliomatous, or a mixed disease, etc. He thought that it was primarily a local disease, which might be allied to, or grafted upon, some constitutional affection, such as syphilis, cancer, or scrofula, but in its essential pathology he considered it an outgrowth of the cutis alone. The disease was of a most formidable, persistent, and destructive nature, and it would often baffle the efforts of the most skillful physician in its treatment. It was neither contagious nor inoculable. In only one case had he known it apparently to have been associated with syphilis, but he regarded these two affections as entirely distinct from each other. Unlike cancer, lupus was not liable to destroy life by affecting distant organs. The treatment was local and chiefly surgical. If a constitutional taint was supposed to be present, appropriate constitutional treatment might be adopted. In some instances he had given the bichloride of mercury in small doses, long continued, or Donovan's solution, and apparently with benefit in some cases. Locally he had used pernitrate of mercury, acetic or other acid, iodoform, opium, excision of the elevations, etc. Care should be taken to avoid injury to the underlying parts. The author then exhibited an écraseur which many years ago he had invented for the removal of such excrescences.

Dr. **John Byrne**, of Brooklyn, remarked that he had had occasion to treat such cases frequently. He had at present a very typical case under observation, on which he intended to operate in a few days. He had tried constitutional treatment by various alteratives, and local treatment by stimulants, escharotics, etc., but without beneficial results, and latterly he had abandoned medicinal and employed surgical treatment exclusively. He excised the excrescences by the cautery, and then thoroughly cauterized the subjacent tissues; the parts healed by granulation, and without any difficulty. Four years and a half ago he operated upon a case in this manner, and recently the patient had returned, threatened with a relapse of the disease. This was the only case, to his knowledge, in which a return of the disease had occurred. He emphasized the importance of thoroughly cauterizing the stump after removal of the mass, by whatever method.

Dr. **Gilman Kimball**, of Lowell, Mass., said he favored Dr. Byrne's method of removing these excrescences by the galvanic cautery. He had used it in cases in which the affection was perhaps more nearly allied to cancer than to lupus, removing masses both upon the labia and within the mouth, after which the patients were apparently entirely cured.

The paper was further discussed by Dr. Barker and Dr. Wilson.

(*To be continued.*)

NEW YORK OBSTETRICAL SOCIETY.

A **stated** meeting was held October 18, 1881, Dr. **James** B. **Hunter**, President, in the chair.

Abortive Ovum.—Dr. H. J. **Garrigues** presented a specimen with the following history: Some time ago a lady consulted him as to whether or not she was pregnant. She was twenty-six years of age, had been married three years, and had had one child. Her last menstruation had occurred seven months previously. Four months before her visit to Dr. Garrigues she was examined by a physician, who told her she was pregnant. She then passed into the hands of another physician, who treated her during some months for uterine catarrh. She was still in doubt whether she was pregnant or not. When Dr. Garrigues examined her he found the uterus somewhat enlarged, but not so large as it should be at the seventh month of pregnancy. The antero-posterior diameter was only very slightly enlarged. A very dark discharge came from the vagina, and on introducing the speculum he found that this discharge had its origin in the uterus. Besides this nothing could be discovered but some cervical endometritis, which he treated with iodine applications and vaginal injections. He did not think it safe to introduce any instrument into the uterine cavity. Four days afterward she was seized with very violent pains, and on examining her he found the os uteri open and a round body presenting. After an hour a very beautiful specimen of what was called an abortive ovum was discharged—a diseased ovum in which there was no trace of a fœtus. Another name under which it had been described gave a very good idea of the specimen presented, namely, a bloody mole with hæmorrhagic cysts. It was a round sac of about the size of a goose's egg, entirely closed with the exception of quite a small opening, through which a small sound could be introduced. The outer surface was rough. Upon cutting it open the inner surface was found studded all over with protuberances, varying in size from that of a small pea to that of a hickory-nut. All these protuberances were covered with a smooth membrane, and at least one, perhaps more, had a small opening, which was evidently the source of the dark discharge which he had seen on first examining the patient. A microscopical examination showed all the component parts of the ovum (amnion with epithelium, chorion, and a part of the decidua), but there were no traces of a placenta or of a fœtus. Most of the wall was formed of coagulated blood and fibrine between the amnion and the chorion. The woman had always been perfectly regular up to seven months before, and it would appear, therefore, that this body had been carried in the womb seven months.

Dr. T. G. THOMAS asked to what period of development Dr. Garrigues thought the ovum had advanced.

Dr. GARRIGUES replied that, judging by its size, he should say about the end of the third month. He supposed there must have been very early disease in the fœtus, else it would not have become dissolved so as to pass through so small an opening.

Dr. THOMAS remarked that, if it was about the time of the second month that death of the ovum occurred, it would account for the absence of both the placenta and the fœtus.

DEATH AFTER OVARIOTOMY, CAUSED BY FATTY DEGENERATION OF THE HEART.—Dr. EMIL NOEGGERATH presented a specimen and narrated the history of three cases, the first of which (the one that furnished the specimen) was as follows: In the middle of September last a patient who had an ovarian cyst entered Mount Sinai Hospital. She was a very healthy-looking woman, thirty-nine years of age, and had borne three children. Three years ago she had had hæmorrhage from the vagina which lasted about a week, and after that her menstruation became very irregular, and finally ceased altogether. Dr. Noeggerath examined her very carefully, because the last three cases of ovarian cyst which he had seen were complicated with heart disease. The heart sounds in the present case were perfectly normal, and the heart appeared to be unusually healthy. She was operated upon on the 4th of October. The lower section of the cyst had developed into the right broad ligament in such a manner that it could not be enucleated, nor would it admit of the formation of a pedicle. Therefore only the upper part of the cyst was cut off; the remaining portion was attached to the abdominal wall with sutures. A drainage tube was inserted into the cavity of the part which remained, and another, alongside of it, into the abdominal cavity. Nothing unusual occurred in the course of the operation, although the patient lost a good deal of blood on account of the difficulty of tying some of the vessels within the walls of the very solid mass. The pulse was 72, and there was every prospect of a good recovery. The next morning, to his astonishment, he received a letter from the house surgeon, saying the patient was dead. The letter further stated that at 5.30 P. M. of the day before the pulse was 92, temperature 100° F.; at 8.45, pulse 106, temperature 100°; at 9.45, pulse 104, temperature 101·75°; at 12 midnight, pulse 100, temperature 101·2°. The house surgeon saw her between 12 and 1 o'clock, and her condition was very favorable. At 2 o'clock the pulse was 84, the temperature 98·6°; at 2.30, temperature 101°. Consequently, up to 2.30 A. M. the case was progressing favorably, and then all of a sudden the doctor was called, and on reaching the patient's bedside found her dying. No pulse could be found. Previous to that she had been imperfectly conscious. She had had a little retching, which occasionally amounted to an attempt at vomiting. The next day he met Dr. D. M. Stimson, who had assisted at the operation, and he said that he must have lost his patient from hæmorrhage, but Dr. Noeggerath thought that could not be, as he had tied all the blood-vessels very carefully. It was pretty clear in his mind that the trouble was with the heart. At the post-mortem examination no hæmorrhage was found to have occurred. The kidneys and the lungs were healthy. The heart was rather small; the left ventricle was quite firm, and looked natural, except that it was perhaps a little more brownish than we should expect to find in a woman of such full muscular power. The right ventricle was very thin and partly transformed into a mass of fat. A microscopical examination showed that nearly all of the muscular fibers of the left ventricle were also transformed into small-granular fatty matter. Consequently it was a case of paralysis of the heart caused by fatty degeneration of its tissue. This was the third case of the kind which Dr. Noeggerath had seen. One case occurred about three years ago, in the German hospital. In that case he had simply performed Bischoff's operation for prolapsus of the uterus and the posterior wall of the vagina. The patient lost considerable blood, but there were no serious symptoms of anæmia. After about ten hours she suddenly sank and died. The gross appearance of the heart was perfectly normal, but a microscopical examination showed that it had entirely undergone fatty degeneration. There was not a single healthy muscular fiber left. In the third case the patient was quite fat, but the heart appeared to be healthy. The patient was operated upon the first time under chloroform, but as the operation was not satisfactory she was operated upon again after six weeks. The operation was begun under chloroform. But, the pulse being found not quite as good as it ought to be, it was completed under ether. She took ether nicely, and was under its influence about an hour and a half. As the anæsthesia passed off the pulse was fair, the temperature was normal, but she began to talk incoherently, and gradually became comatose. She died suddenly about ten hours after the operation. The heart was found to be in a most complete state of fatty degeneration.

Dr. C. C. Lee asked how Dr. Noeggerath would account for the fact that the patient did well, the heart acting normally, during the administration of the anæsthetic and primary shock, but seemed to die suddenly during secondary shock. He had had several cases in which patients died after an operation performed under ether, and it was found that there was fatty degeneration of the heart; but in all those cases death occurred shortly after the operation.

Dr. Noeggerath replied that he had put the same question to himself, and could not answer it except by theoretical reasoning.

Dr. A. JACOBI said that a heart which was the seat of fatty degeneration would not give out so long as its nutrition was not seriously interfered with. It was true that the heart might give out during the primary shock of an operation, but it often did not until ten or twelve hours, or even a day, after the operation; and he accounted for it by the fact that food and stimulants were not absorbed during shock, but might remain in the stomach for some hours (and then perhaps be thrown up), and consequently during that time there was no additional supply to the heart's nourishment. He therefore proposed to inject stimulants subcutaneously, and in many cases it would be found that a few drachms of alcohol thus administered would do more good than half a pint given by the stomach in the same length of time. He believed that the heart was often in a more debilitated condition after ten or twelve hours than during the immediate shock from the operation.

Dr. W. M. POLK thought Dr. Jacobi's reasoning was opposed in the present case by the fact that there was no increased rapidity or frequency of the pulse up to a few moments before death.

Dr. JACOBI remarked that fatty degeneration of the heart often did not manifest itself for a long time by a change in the condition of the pulse. In some cases, however, the pulse was more rapid than usual, while in still others it was slower, even in some instances beating not oftener than sixty, forty, or thirty a minute, the slowness of the pulse depending on fatty degeneration of the ganglia of the heart.

LINGERING ABORTION.—Dr. F. P. FOSTER presented a specimen that had been sent him by Dr. A. L. Carroll, of New Brighton, S. I., accompanied by the following history: Mrs. S., aged about thirty years, bore four children at intervals of a little more than a year apart, then had a miscarriage at the sixth month; then, in June, 1880, was delivered of twins at a little over the seventh month. At the birth of her second child she sustained a laceration of the perinæum which was not properly treated, prolapsus in the second degree resulted, with cervical endometritis, and, of late development, some supra-vaginal hypertrophic elongation of the cervix. She had habitually menstruated at intervals of three weeks. Early in April last she passed over a menstrual period, but at the next expected date the usual flow appeared. On May 19th she had a profuse metrorrhagia, which, as he could detect no signs of miscarriage, the doctor attributed to the endotrachelitis, especially as she had undergone much fatigue and loss of rest in attendance at the death-bed of one of her children. After this, what she supposed to be normal menstruation, attended by the customary molimina, recurred somewhat irregularly, but sufficiently near the expected periods to allay any suspicion of other than ordinary causation. In the middle of August she wrote to Dr. Carroll from Long Island, where she was passing the summer, that she had had another hæmorrhage lasting for several days; and for some time afterward metrorrhagia, more or less profuse, occurred nearly every week up to the time of her return to New Brighton, on September 19th. It then ceased until October 3d, when Dr. Carroll was summoned and found her flooding freely, having expelled the fœtus that was now presented. The cervix was elongated, but patulous; a portion of the placenta was presenting at the os. On tracing this up, however, its upper part was so firmly adherent just above the internal os that the doctor had some difficulty in detaching it. Nearly half of the placenta bore evidence of having been long separated from the uterine wall, and it was probable that this separation occurred at the time of the hæmorrhage six weeks before the extrusion of the fœtus. Supposing conception to have taken place about the date of the missed period, this would account for the apparent age of the fœtus, which must, therefore, have been retained for more than six weeks after its death. Dr. Carroll added that it was easy to be wise after the event, and to ascribe the later hæmorrhage to the detachment of the partially previous placenta; but he could neither frame an explanation of the flooding in the second month (when there could have been no question of placental implantation), nor understand how the vitality of the ovum could then have withstood so rude a shock.

UTERINE POLYPUS, WITH PARTIAL INVERSION OF THE UTERUS.—Dr. **JOHN BYRNE**, in presenting this specimen, said that he did so less because of any special pathological interest which it possessed than to illustrate the use of the galvanic wire in the removal of such tumors. The patient from whom the polypus was removed was a married woman, aged twenty-eight years, who was confined with her third child in October, 1879. She made a fair recovery from her confinement, but she was surprised to find her menses return in January, three months after labor. In February she menstruated again, this time a little more copiously. Throughout the summer of last year she had menorrhagia, the intervals between the hæmorrhages becoming less all the time. She spent the summer in the country, but without benefit. Three weeks ago Dr. Byrne was called to see her, and found a large mass, somewhat pyriform in shape and firm in character, filling the vagina. The attending physician supposed it to be an inverted uterus. With some difficulty the finger could be introduced and swept around the entire circumference of the os uteri, which was very largely dilated. The sound could be passed a distance of only three quarters of an inch. The examination caused no pain. With the hand over the pubes a cup-shaped depression could distinctly be felt in the fundus of the uterus. Dr. Byrne could not decide positively whether it was a case of inversion of the uterus, or one of partial inversion caused by a polypus. Examining the patient under ether, he made the diagnosis of intra-uterine fibro-cellular polypus, attached directly to the center of the fundus. There was no pedicle, but an hour-glass constriction merely, indicating the attachment of the tumor to the inverted fundus. The method adopted for its removal was by the heated wire. At a discussion of a paper on this subject, read before the American Gynæcological Society recently, by Dr. Reamy, of Cincinnati, Dr. Byrne had condemned the use of the écraseur in these cases as dangerous. Had such an instrument been used in the present case, the whole or a part of the fundus of the uterus must necessarily have been removed. After removal of the tumor the uterus immediately returned to its normal position, and the case did well. There was no loss of blood.

Dr. B. McE. **EMMET** suggested that a pedicle might have been formed by traction, after which the tumor might have been removed by a much simpler operation, as by nicking the pedicle with the scissors.

Dr. **BYRNE** remarked that the least traction in this case would have converted a partial into a complete inversion of the uterus.

Dr. **EMMET** said that usually the inversion could very easily be reduced after removing the tumor.

JOSEPH E. JANVRIN, M. D.,
HENRY D. NICOLL, M. D.,
FRANK P. FOSTER, M. D., *ex-officio*,
Committee on Publication.

A STATED meeting was held November 1, 1881, Dr. CHARLES O. LEE, President, in the chair.

MYXO-FIBROMATOUS CYST OF THE KIDNEY; NEPHRECTOMY.—Dr. T. G. THOMAS gave the history of a case as follows: About six weeks ago a young German girl entered the Woman's Hospital with a supposed ovarian tumor. On making an examination Dr. Thomas found nothing at all peculiar about the case, except that fluctuation was not quite so distinct as it ordinarily was in a cyst as large as hers appeared to be, for, if it was an ovarian cyst, it seemed that it must be an ordinary paucilocular one, and the slight fluctuation could be accounted for only by supposing the walls to be rather thick. He therefore took the case to be one of ovarian cyst with some peculiarities. A time was appointed for an operation, and when the patient was anæsthetized he had, for the first time, on placing his hands on the tumor, some doubts with regard to its character, and those doubts were based upon the extreme obscurity of fluctuation. On making the incision and introducing his finger within it, he remarked to the gentlemen present that in all probability it was not a case of ovarian cyst, for in rather a large experience with ovarian cysts he had never found intestines in front of the cyst and below it over the bladder, as in this case. After enlarging the incision slightly, and being still unable to find fluid, he carried it on up to the umbilicus, and there found a point where fluid was collected. A trocar was introduced, and at once there flowed out six pints of fluid which resembled urine so closely in appearance that he asked Dr. Garrigues, who caught some in a vial, whether it had the odor of urine. But up to that time, and even then, he had no correct suspicion of the character of the tumor. He then tried to remove it, but found it extensively adherent to the intestines in the lower portion of the abdomen and to the bladder. It was so firmly attached that he remarked to the gentlemen present that he doubted whether it could be removed. However, he managed to remove it, and one could judge of its size by the fact that the fluid withdrawn weighed six pounds, and the weight of the solid portion of the tumor when removed was five and a half pounds. In tearing it from its attachments a great deal of hæmorrhage occurred, which was checked by applying small silk ligatures to bleeding vessels. During its removal Dr. Post remarked that it looked very much like the kidney. It was not until he discovered the ureter that Dr. Thomas appreciated the fact that he was dealing with the kidney. The organ was spread out over a considerable area, and its walls were not thicker than his finger. As before stated, the solid element was considerable, and at different points there were collections of fluid, from one of which the large quantity referred to was withdrawn. The tumor was pulled out from its attachments in the pelvis below and cut off. A silk ligature was tied around the ureter and vessels, and the pedicle was dropped back into the abdominal cavity, just as in the case of removal of an ovarian tumor. The abdominal incision was then closed, and the patient was put upon the ordinary treatment adopted after ovariotomy. Within twenty-four hours symptoms of peritonitis developed. The temperature went up to 108° Fahr., the pulse was 125, and the patient suffered from intense pain in the epigastrium, demanding large injections of morphine. Upon pressure the pain located itself just over the point where the kidney had been removed, but the maximum degree of pain was felt over the epigastrium. According to his usual custom after such operations, Dr. Thomas had the patient placed upon Kibbie's cot and water applied, by which the temperature was brought a little below 100°. When the temperature was reduced, the pulse, as was almost uniformly the case in his experience, went down likewise. The slight attack of peritonitis which she was supposed to have passed off, and at the end of nine days the patient was able to be removed from the hospital, and was now entirely well. He would say, regarding her general condition before the operation, that she expressed herself as feeling very sick. She looked like a very sick girl, as if in an advanced stage of chlorosis. She said she could not stand it much longer; that, although she had no pain, she felt extremely exhausted. Since the operation, and after the slight attack of peritonitis passed away, she had been steadily improving, and was now much better than before the extirpation of the kidney.

THE PATHOLOGIST, Dr. H. J. GARRIGUES, then gave the following description of the tumor: The tumor formed one body with the left kidney, which was removed together with it, a pedicle being formed of the ureter and the renal vessels, and dropped after ligation. The solid part of the tumor weighed six pounds, and the fluid five and a half pounds. At the pedicle was seen the pelvis, entirely normal. The calices were likewise normal. The upper part of the kidney had been removed from the specimen when Dr. Garrigues examined it, but had not presented any abnormality, and the lower half, measuring from the middle of the pelvis to the lower end, being six centimetres long, showed that the length of the whole organ was normal. The width at the outer surface was only four and three-tenths centimetres, instead of five or six, and in the interior there was only found the thin mucous membrane of two calices separating the pelvis from the large cyst which constituted the main part of the tumor. Above and below this place was found thick kidney tissue. It was rather pale, and the difference between the pyramids and the cortical substance was little marked, but otherwise it presented a perfectly healthy appearance, and especially no cysts were anywhere visible. The capsule of the kidney was entirely normal, and could be seen to pass over on to the tumor, whose wall it constituted. The kidney had been hollowed out, as it were, by the cyst. Most of the tumor was made up of a large cyst. Near the kidney the walls of this cyst were quite thin and constituted by the capsule only. In the lower part they were thick and fleshy, and contained numerous small cysts of the size of hazelnuts. Some were perfectly round, others oblong. Their wall was smooth, but not covered with epithelium, nor could any lining membrane be dissected from the surrounding tissue. This tissue was in some places rather hard, like a fibroma, in others soft, like a mucous polypus. The walls of the large cyst were uneven, and from the thin parts large pedunculated fleshy masses hung free into the interior, varying in size from that of a hen's egg to that of a goose's egg. The apex of these masses looked ragged. The microscopical examination showed that the kidney was in a state of slight catarrhal nephritis, but otherwise normal and without any trace of cystic degeneration. Sections taken from one of the hardened fleshy lumps in the interior of the large cyst showed a network of stellate cells with a great amount of a structureless intercellular substance. In some places were found small circumscribed patches full of small round nucleated cells and nuclei. In others the spindle-shaped cells were beginning to form fibers. This structure, then, showed that the tumor was a myxoma, a growth of benign character. Its starting-point had probably been the capsule of the kidney. Originally, it had been solid, but by and by cysts had formed by a kind of melting process. The partitions being absorbed, a large cyst had been formed. Under the pressure exercised by this cyst the kidney tissue had been partly atrophied and absorbed, leaving a shell which in some places was formed only by the mucous membrane of the calices, while mostly it was composed of normal glandular kidney tissue. The fluid which flowed through the cannula from the large cyst was reddish yellow, clear, and watery, like urine, had no odor, did not coagulate spontaneously, became entirely solid by heat, and the coagulum remained unchanged by boiling it with an excess of acetic acid. The specific gravity was 1·022, the reaction alkaline. Microscopical examination revealed a great number of red blood corpuscles; small polyhedral cells full of fat globules and much like Bennett's large corpuscles, as seen in the fluid from ovarian cysts, but much smaller; large empty, flat cells; and a great many shreds of connective tissue. Both macroscopically and microscopically it differed entirely from ovarian fluid. Dr. Welch, who had examined other parts of the tumor, had found that the walls were composed of fibrous tissue, and that the contents of the small cysts had become coagulated. The first was corroborated by the shreds of connective tissue found in the cyst by Dr. Garrigues, and the complete diagnosis was therefore that of cysto-myxo-fibroma.

Dr. W. R. Gillette asked whether the urine had been examined before the operation.

Dr. Thomas replied that it had been, and that nothing abnormal was found.

Dr. Gillette remarked that it was strange that, with such a condition of the kidney, there was no evidence of renal trouble in the urine.

Dr. John Byrne said that about four months ago he operated in a case which, in many respects, was very similar to the one narrated by Dr. Thomas. The patient was a widow, forty-three years of age, who had borne several children. He was consulted on account of the presence of an enormous tumor which had been diagnosticated by several physicians as ovarian. He examined the patient several times in the hospital, and, though the tumor possessed some peculiarities different from an ordinary ovarian tumor, yet, if it were not such, he could not tell what it was. A day was appointed for an operation, and, on examining the patient thoroughly while she was under the influence of an anæsthetic, he concluded that the tumor could not be ovarian, from the fact, among other reasons, that there was marked resonance in front of it. However, he cut down upon the mass, and at once discovered that it was a cyst of the kidney. There was fluctuation in the upper part, into which a trocar was introduced and a large amount of fluid, very similar to that described by Dr. Thomas, was withdrawn. He thought there was less solid material in this mass than in that described by Dr. Thomas. It was so extensively and firmly adherent, however, and the patient was so much reduced, that it was thought best not to attempt its removal. On examining it very carefully it seemed to spring from the pelvic surface of the kidney, and an indurated, shriveled mass, occupying the situation of the kidney, was all that could be felt which resembled that organ. It had none of the characters of smoothness, elasticity, etc., which belonged to the normal kidney. Dr. Byrne having completely evacuated the cyst cavity, secured the cyst opening by carbolized silk, and closed the abdominal wound, the patient made a good recovery. Six weeks ago, twelve weeks after the operation, fluctuation appeared at the lower portion of the abdominal cicatrix, and after a few days a copious discharge of pus took place from the sac, which had suppurated. Notwithstanding this, the woman was growing stout and healthy, but what the final result would be he could not predict.

With regard to the rarity of the disease, Dr. Garrigues said he had examined the last edition of Rindfleisch's work on pathology, in which all that was said about cysts of the kidney referred to an entirely different kind—namely, enlargement of Bowman's capsule and of the uriniferous ducts. As to fibromata, he knew only of those of the size of a pea, and he did not mention myxomata at all. The case, therefore, must be extremely rare.

THE PRESIDENT asked Dr. Thomas whether there were any evidences of uræmia, or other symptoms showing that the kidneys did not do their work. Dr. Thomas replied in the negative, and said that the extirpation of the kidney had had no effect upon the secretion of urine.

REMARKABLE PATHOLOGICAL DEVELOPMENT OF A SIX MONTHS' FŒTUS.—Dr. H. T. HANKS presented a specimen which was accompanied by the following history: The specimen presented was a full-sized six months' fœtus and placenta. The points of interest were the absence of the anterior abdominal wall of the fœtus, the absence of the anus, vagina, and rectum, and the abrupt termination of an open small intestine. The large transverse colon could be seen at the upper part of the open abdomen, and he thought the descending colon and rectum were present in about the normal position, the latter ending as was common in imperforate anus. Dissection had not been made, however, as he wished to present the fœtus with as little mutilation as possible. As would be seen, it was a difficult matter to decide the sex of the fœtus, but from a careful inspection he believed it to be a male, as there were two small bodies like testicles, one on the right and the other on the left side of the lower abdomen. A very slight dissection over the region of the right kidney revealed the organ in its normal position. On examining the placenta it would be seen that the short cord was continuously connected with it. It terminated, after a bifurcation, directly over a membranous pouch, or compartment, in the placenta. This pouch had formed the anterior wall of the abdomen of the fœtus, and in it were developed the abnormally large liver and the small intestines. The lining membrane of this pouch would be seen upon examination to be considerably thicker and less friable than the normal amniotic membrane. The Pathologist might determine it to be true peritonæum. The fœtus presented by the breech. After the legs had been brought down, it was found impossible by gentle traction to extract the fœtus. On passing his hand up, Dr. Hanks found what seemed to be a large tumor adherent to and growing out from the abdominal wall of the fœtus, which occasioned the difficulty of its expulsion. As he pressed the base of this tumor upward, a sudden pain coming on forced the fœtus down, and tore off the tumor. The condition of the fœtus was at once apparent. The placenta followed immediately. The mother, during early pregnancy, was under the care of another physician, who reported to Dr. Hanks when he transferred the case that she had become somewhat exhausted from lactation and rapid child-bearing, and at that time was suffering from malarial poisoning. Dr. Hanks found her at the third month of gestation with sharp retroversion. This condition was relieved by the knee and elbow position and the application of an Albert Smith retroversion pessary. The pessary was worn for a few weeks, the patient afterward going to Saratoga for six weeks. At the end of that time, on her return to the city, labor pains began, and her general condition indicated death of the fœtus. Cervical dilatation occupied three days, and the result was as above given. He believed the cause of this condition of the fœtus was an early rupture of the cord at its point of union with the fœtus.

FARADIZATION IN THE TREATMENT OF EXTRA-UTERINE PREGNANCY.—Dr. W.

T. Lusk presented the aborted decidua of an extra-uterine pregnancy at the tenth week, and referred to the use of the faradaic current in destroying the life of the ovum and causing absorption of the tumor. The current was applied daily for three days, one pole directly over the tumor, in the vagina, and the other on the abdominal wall, but without any result; and, at the urgent suggestion of Dr. Thomas, it was continued five days longer, this time applying one pole through the rectum, with the result of producing death of the embryo and almost complete disappearance of the tumor.

The Removal of Mucus from the Cervical Canal.—Dr. Lusk showed a little instrument copied from a cut in the "Lancet," and designed for the removal of tenacious mucus from the cervix uteri. With it one could remove the mucous plug without injury to the mucous membrane. It had been highly recommended to him by Dr. Castle, who had the copy made. He also showed a small wire snare which had been invented for the removal of polypi from the nose, but which Dr. Castle had employed with great advantage in the removal of small fibroid polypi from the uterus.

Dr. A. J. C. Skene thought the mucous plug could better be removed with Thomas's small wire curette, which he had found to answer that purpose admirably.

Dr. J. B. Hunter had formerly used the syringe for this purpose, but more recently he had employed absorbent cotton exclusively, being enabled with it to remove the mucus without much difficulty. The cotton was wound round a piece of whalebone, and made to rotate so as to catch the mucus. Sometimes it was necessary to use two or three pieces.

Dr. W. M. Chamberlain had been in the habit of first coagulating the mucus by passing in on a wire a little absorbent cotton dipped in carbolic acid. The coagulum could then be very easily detached from the surface of the mucous membrane. The mildly escharotic action of the acid was the proper medication for the diseased glands as well.

Dr. Thomas used small, square pieces of dry sponge, which were inserted with very small forceps. He had never been able to succeed with absorbent cotton, and was surprised at Dr. Hunter's success with it.

Dr. Byrne could testify to the value of the method adopted by Dr. Chamberlain. He used a combination of iodine and carbolic acid for the purpose of coagulating the mucus, after which he removed it with a forceps or with dry sponge.

Dr. P. F. Mundé had employed Dr. Thomas's method with success, but he more frequently used the syringe, with which he had always been able to remove the mucus after one or more trials.

Dr. J. G. Perry said that his manner of removing the tenacious mucus from the cervix was by Dr. Thomas's wire curette, and from the vagina with dry sponge. The application of the dry sponge to the cervix, as adopted by Dr. Thomas, he considered too severe and likely to produce bleeding. As to the curette being too large to introduce into the cervix, in cases where he found it necessary to use measures for the removal of mucus from the cervix its accumulation had already dilated the cervix.

Extra-Uterine Pregnancy.—Dr. Bache McE. Emmet related the history of a case. [See the January number of the Journal, p. 81.]

Dr. T. A. Emmet gave the history of the case up to the time it was put under the care of Dr. B. McE. Emmet. The patient was sterile, and had been married for several years. He found what he considered to be congenital retroversion of the uterus, in which the posterior cul-de-sac was absent, the vagina terminating at the face of the cervix. Perhaps by some imprudence, while trying to stretch the vagina so as to make room for a pessary to correct the retroversion, he set up a cellulitis on the left side, and it was a year before he could succeed in removing this inflammation and retain the uterus in position by a pessary. The patient then gained greatly in health and became pregnant. He believed Dr. B. McE. Emmet had omitted reference to one feature in the case—namely, the absence of a show, which was so common a symptom in extra-uterine pregnancy. There was no sign of extra-uterine pregnancy until nearly the third month had elapsed, when symptoms of miscarriage occurred. On examining her he found the mass referred to situated between the bladder and the uterus, almost in the median line. There was a difference of opinion as to its exact locality. He saw the case in September with Dr. Bache McE. Emmet, and found nothing remaining but the hard mass which had been referred to. There could not be the slightest doubt as to pregnancy having existed outside the uterus, and he thought the sac was situated in the abdomen, in front of the bladder, and not in the tube.

The PRESIDENT asked Dr. Thomas if he did not think many of the facts in the case unusual.

Dr. THOMAS replied that it was a very obscure case, but he agreed with all that had been said by Dr. Bache Emmet. He thought it was unquestionably a case of extra-uterine pregnancy.

Dr. LUSK asked whether any case had been recorded in which the implantation of the ovum had taken place between the uterus and the bladder.

Dr. T. A. EMMET thought the most important feature in the case was absence of any show to indicate anything more than normal pregnancy, and he asked if this was not unusual. To which question Dr. Thomas replied that in his experience it was very unusual.

Dr. W. M. POLK said that the late Dr. Parry, of Philadelphia, had related a case in which the uterus was behind an extra-uterine fœtus. He believed, however, that the case had not been verified by a post-mortem.

Dr. LUSK remarked that it would not be unusual, as pregnancy advanced, for the growing ovum to pass to the front of the uterus, but he thought it would be impossible for it to be found there in the early stage.

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Reports on the Progress of Medicine.

MONTHLY REPORT ON OBSTETRICS AND GYNÆCOLOGY.

No. XIII.

By FRANK P. FOSTER, M.D.,
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Obstetrics.

1. V. Hecker, C.—"Beobachtungen und Untersuchungen aus der Gebäranstalt zu München, umfassend den Zeitraum von 1859–1879." München, 1881.
2. Stuart, J. A. E.—Gleanings from my midwifery case-book. "Edinb. Med. Jour.," Dec., 1881.
3. Dalton, J. C.—Position of the embryo in the fowl's egg. "Med. Record," Nov. 26, 1881.
4. Watson, M.—On the female organs and placentation of the raccoon (procyon lotor). "Proc. of the Roy. Soc.," xxxi, 209, xxxii, 213.
5. Willcocks, F.—Some comparative observations on the blood in chlorosis and pregnancy. "Lancet," Dec. 3, 1881.
6. Runnalls, H. B.—Anteversion of gravid uterus at full term. "Brit. Med. Jour.," Nov. 12, 1881.
7. Sabin, R. H.—Retroversion of the uterus. "Med. Ann.," Nov., 1881.
8. Barnes, R.—Fluid pressure applied to the reduction of retroversion of the gravid uterus. "Brit. Med. Jour.," Dec. 10, 1881.
9. Girdner, W.—A case of abortion without pain or hæmorrhage. [Letter.] "Med. Gaz.," Nov. 26, 1881.
10. Lewis, E. S.—Hydatiform mole. "N. O. Med. and Surg. Jour.," Dec., 1881.
11. Ciccone, V.—Idrope uterina delle gestanti; idrocefalo fetale: puntura dell' addome. "Gazz. Med. Ital., Prov. Venete," Nov. 19, 1881.
12. Reeve, J. C.—Death from chloroform during labor. "Ohio Med. Jour.," Nov., 1881.
13. Meymott, H.—Protracted labor. "Brit. Med. Jour.," Nov. 19, 1881.
14. Harvey.—Incision of the cervix uteri. [Calcutta Med. Soc.] "Indian Med. Gaz.," Nov., 1881.
15. Partridge, E. L.—Accidental ante-partum hæmorrhage. "N. Y. Med. Jour. and Obstet. Rev.," Dec., 1881.
16. Soca, L.—Insercion anormal completa ó central de la placenta. "Rev. de Cienc. Méd.," Nov. 10, 1881.
17. Ripley.—Labor at full term—subsequent condition of the placental site. [N. Y. Path. Soc.] "Med. Record," Dec. 17, 1881.
18. M'Murrich, M.—Report of a case with funic souffle. "Glasgow Med. Jour.," Dec., 1881.
19. Webb, V. G.—Axis-traction forceps. "Lancet," Nov. 19, 1881.
20. Gay, C. C. F.—Pelvic version; report of cases, with remarks. [Buffalo Gen. Hosp.] "Buffalo Med. and Surg. Jour.," Dec., 1881.
21. Morris, J.—Management of the shoulders in labor. "Maryland Med. Jour.," Nov. 15, 1881.
22. Stone, E. R.—The management of the perinæum in labor. "Med. and Surg. Reporter," Dec. 3, 1881.
23. Nickerson, N.—Laceration of the perinæum—whose fault is it? "N. E. Med. Month.," Nov., 1881.
24. Ellis, L. E.—Case of forced twin labor at seven months. "Buffalo Med. and Surg. Jour.," Dec., 1881.

25. Taylor, W. T.—Difficulties of a twin labor. "Med. Bull.," Dec., 1881.
26. Archinard, P. E.—United twins. "N. O. Med. and Surg. Jour.," Dec., 1881.
27. Rubinstein.—Wahrung der Priorität der Messungsmethode des Symphysen-Conjugata-vera-Winkels. (Contra A. Tschernowa-Popowa.) "Centralbl. f. Gynäk.," Nov. 12, 1881.
28. O'Connell, P.—New umbilical cord repositor. "Chicago Med. Jour. and Exam.," Nov., 1881.
29. Bischoff, J. J.—Ein günstig verlaufener Fall von intraarterieller Infusion einer alkalischen Kochsalzlösung bei drohendem Verblutungstode. "Centralbl. f. Gynäk.," Nov. 12, 1881.
30. Liman.—Umstülpung der Gebärmutter. Kunstfehler, "Dtsch. med. Woch.," Nov. 12, 1881.
31. West, S.—Extra-uterine fœtation. [Path. Soc. of London.] "Brit. Med. Jour.," Nov. 19, 1881.
32. Davidson, L. G.—A case of tubal gestation. "Lancet," Nov. 12, 1881.
33. Blackwood, W. R. D.—Static electricity as a galactagogue. "Phila. Med. Times," Nov. 19, 1881.
34. McFarlane, L.—Puerperal eclampsia. "Canadian Jour. of Med. Sci.," Dec., 1881.
35. Parsons, J. W.—Puerperal convulsions. "Trans. of the N. H. Med. Soc.," 1881.
36. Barker, F.—"Remittent fever of puerperal women." [Letter.] "Va. Med. Monthly," Nov., 1881.
37. Mandeville, F. B.—Puerperal malaria. "N. Y. Med. Times," Dec., 1881.
38. Carr, J. M.—Puerperal insanity. "Cincinnati Lancet and Clinic," Dec. 10, 1881.
39. Conner, J. J.—How long may the fœtus survive the mother? "Med. and Surg. Reporter," Dec. 17, 1881.
40. Watkins, J. M.—Fœtal deformities not due to heredity. "N. O. Med. and Surg. Jour.," Dec., 1881.
41. Parker.—Two cases of tetanus neonatorum. [East London Hosp. for Children.] "Med. Times and Gaz.," Dec. 3, 1881.

5. Dr. Willcocks has examined into *the state of the blood in pregnancy* in a number of cases, and compares the facts ascertained by numeration and chromometry with those known to obtain in chlorosis. He thinks his observations warrant the following conclusions: 1. That a more or less considerable diminution of hæmoglobin is found in both pregnancy and chlorosis, especially in the latter, but that beyond this fact no obvious analogy exists between them. 2. That in pregnancy the diminution of color is due to a fall in the number of red cells, and that the individual cell remains of high value. In chlorosis both the cells and the individual value are reduced, the latter being in excess of the former. 3. That the blood-state of healthy pregnancy is due to a large relative increase in the water of the plasma, and that this condition does not constitute a true anæmia, but is due to the progressive enlargement of the vascular area during pregnancy. It is to this great serous dilution of the blood, he thinks, that the impunity with which some women bear enormous hæmorrhages during parturition is to be attributed.

18. Dr. M'Murrich thus describes *the funic souffle* as observed by himself in the case of a primipara, aged 24, about two weeks before delivery at term: Over an area two inches square, situated an inch or two below and to the left of the umbilicus, a very distinct whiffing murmur was heard synchronous with the fœtal heart-sounds, the double character of which latter could be recognized amid the whiffing. This murmur was much intensified by pressure with the stethoscope, but could be heard (having a different pitch, however) with the least possible pressure. Even on applying the ear directly, with the intervention of a handkerchief only, the murmur was recognizable, though much less distinctly than with the stethoscope. Change of posture to the patient's right side rendered the murmur slightly less distinct, even when the stethoscope was applied with its usual pressure. Pressure near the stethoscope failed to stop the funic souffle, and no pulsation could be felt with the hand in

making such pressure. The fœtal movements did not change the situation or the character of the funic souffle, but it could not be heard after labor began. The head presented, and labor was normal, but it was found that there was a hitch of the cord around the left ankle. There were no aneurismal dilatations of the vessels of the cord, and no cardiac murmur was detected the day after birth.

29. Dr. Bischoff relates a case in which, he thinks, the patient's life was saved by *intra-arterial injection of an alkalinised solution of common salt after post-partum hæmorrhage.* This appears to be the first application that has been made upon the human subject of the inference drawn by E. Schwarz and others, from experiments upon certain quadrupeds, that such injection would cause the subsidence of the phenomena of the highest degree of acute anæmia. A primipara, 31 years old, was delivered with the forceps forty-one hours after the rupture of the membranes. For several days before, the abdomen had been very tender, and this tenderness increased after the escape of the fœtid liquor amnii. The evening before delivery there was a rise of pulse and temperature, and the next morning a chill. After the birth of the child considerable blood was lost, and fifteen minutes afterward, on introducing the hand to separate the placenta, which was very firmly adherent at one part, the bleeding was profuse, 1,490 grammes [about 50 oz.] being lost, besides a smaller quantity that was lost in the napkins. With the removal of the placenta the hæmorrhage ceased definitively, but, in spite of restoratives, lowering of the head, etc., the patient became collapsed. The pulse was 156 at such times as it could be felt, the respiration was 42, the extremities were cool, there was great restlessness, and death seemed imminent. A solution of common salt (6 : 1000) was prepared, and, there being no soda at hand, a few drops of lye were added to it. The left radial artery was exposed and tied. A slit was then made in it, to the distal side of the ligature, and a blunt cannula of hard rubber was inserted, connected with a glass funnel by means of 60 centimetres of rubber tubing that had previously been laid in diluted sulphuric acid. During the space of a full hour rather more than 1,250 grammes [about 40 oz.] of the solution were allowed to flow in, the surface of the liquid standing between 58 and 60 centimetres above the arm. During this time the patient manifestly improved, the pulse gradually fell to 122, and the restlessness disappeared; the symptoms of perimetritis increased, however, but this proved quite transitory, and the patient made a rapid recovery. In comparison with the symptoms of oppression that so often accompany the transfusion of blood, the evident improvement of the patient was remarkable; as regards convenience also the saline injection is to be preferred. During the injection the hand was perfectly white, its vessels being filled almost exclusively with the solution; but its natural color and sensibility returned at once on the termination of the process. The wound healed by first intention. The difficulty of finding the superficial veins in cases of great anæmia is the reason for choosing an artery.

33. Dr. Blackwood reports three cases in which he obtained good results with *static electricity as a galactagogue*, using the Töpler-Holtz machine. The manner of making the applications was to use the so-called static induced or secondary induced current from the outside foil of the condensers, the connection between them being broken. The conducting chains were attached to the jars at one end, the other being armed with a small circular electrode covered with chamois leather well moistened with salt water. One electrode was approximated closely to each breast, but short of actual contact. The intensity of the current was regulated by adjustment of the discharging rods, which were usually kept about half an inch apart. At this distance, the author states, the flow is steady and not painful—in fact, compared with faradization it is pleasant. He states also that he has never seen benefit result from galvanism or faradization in cases of agalactia. As the static machine is not readily portable, the treatment can not well be carried out at the patient's house.

GYNÆCOLOGY.

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2. Skene, A. J. C.—The treatment of wounds in gynæcology. "Proc. of the Med. Soc. of the County of Kings," Dec., 1881.
3. Dayton, W. A.—Effects of the abuse of the sexual instinct in females. "Med. Record," Nov. 26, 1881.
4. Clarke, C. H. E.—The surgical treatment of dysmenorrhœa. [Med. Soc. of the County of Albany.] "Med. Ann.," Nov., 1881.
5. Ormsby, R.—Five cases of membranous dysmenorrhœa cured by mercury. "Med. Record," Nov. 26, 1881.
6. Puech, A.—Du purpura hæmorrhagica étudié au point de vue de ses rapports avec la menstruation et la grossesse. "Ann. de Gynéc.," Oct., 1881.
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24. M. Eustache's *modification of Lefort's operation for prolapsus uteri* consists in removing a strip of tissue four centimetres wide, instead of a mere linear denudation, and in using catgut sutures instead of wire. In three cases in which this modified operation was performed success was complete. ═══ In the discussion, M. Després said that all operations for prolapse were alike, and all were entirely useless. Any of them might be followed by success, but the success was temporary, unless the patient was made to wear a belt afterward, for insufficiency of the perinæum was the sole cause of such lesions. He generally brought the posterior part of the vulva together with sutures, but only to obtain a surface large enough for the application of a perineal pad. ═══ M. Lefort declared that M. Eustache had misunderstood his writings on the subject, for he had advised a denudation six centimetres long by two in breadth, and this he thought amply sufficient. Catgut might be used, but the material of the sutures was a matter of but little importance. M. Després's theory of the sustaining action of the perinæum would scarcely lead any one astray who reflected upon the usual course of events: prolapsus always began by an inversion of the anterior and posterior walls of the vagina, which first came together and then formed a hernia; most commonly it was the anterior wall that began the movement, and then vaginal cystocele was observed. The perinæum, it seemed to him, took no part in the matter.

In the operation we should not remove the whole thickness of the mucous membrane, for that was liable to give rise to inflammation of the cellular tissue between the mucous membrane and the peritonæum, but the denudation should be broad and superficial. ===== M. Trélat also differed entirely with M. Desprês as to the part played by the perinæum in prolapse of the uterus. The uterus had its own supports; it was not true that it was held in place by the perinæum—it reposed upon the perinæum, but that was a different matter. ===== M. Guéniot added that there were women who, so to speak, had no perinæum, and yet had no prolapse of the uterus. He regarded M. Lefort's operation as rational and efficacious.

26. Mr. Tait, at a recent meeting of the Pathological Society of London, showed several specimens illustrating diseased conditions of the ovary and adjoining structures, and thus summed up his experience of *dilatation and suppuration of the Fallopian tubes:* There was generally a history pointing to an attack of pelvic suppuration, with subsequent dysmenorrhœa and often menorrhagia and pain on coitus. Sausage-shaped tumors could be discovered behind or on each side of the uterus. Usually the enlarged tubes were firmly attached to the uterus, and the operation for their removal was therefore often difficult and tedious. He had now performed it upon twenty-two patients, all of whom recovered from the operation and remained free from symptoms. He thought that all the cases originated in pelvic peritonitis, with adhesion of the tube to the ovary, and its consequent occlusion. In a case in which no operation was performed death occurred from rupture of the tube into the peritonæum. ===== Mr. Alban Doran argued against the notion, given in all text-books, that the tube ran directly outward from the uterus, the fimbriæ floating free from the extremity, except the fimbria ovarica, which ran downward; nor did the ovary lie transversely, entirely below the tube. He could confirm His's exposition of the attitude of the organ, that it hung with its long diameter almost vertical, close below the brim of the pelvis. The tube ran over its upper border, and then turned down over its free border. Hence the ovary lay on the fimbriæ, and the ovarian fimbria ran upward, not downward. A slight attack of pelvic peritonitis might rapidly glue all the fimbriæ to the ovary; the tube then became dilated, and, instead of rising high above the ovary, as it would if the ordinary ideas of the relative position of these structures were true, half the dilated tube coiled round the outer side and lower part of the ovary. For the same reason tubo-ovarian cysts lay outside or below the ovary, and never above it; and in cases of fœtation within the outer third of the tube the ovary lay above the fœtal sac, between it and the inner third of the tube. In such cases the pregnancy was often taken to be ovarian, simply because the fœtus lay below the ovary. The speaker believed that suppuration of the tube was either of gonorrhœal origin or due indirectly to constant irritation with uterine sounds. ===== Mr. Knowsley Thornton thought Mr. Doran quite right as to the position of the tube. He thought that hydrosalpinx was susceptible of spontaneous cure. ===== The President (Dr. Wilks) had seen two cases in which death from pyæmia seemed to be due to purulent inflammation of the tube. ===== Mr. Tait fully agreed with Mr. Doran as to the relations of the tube to the ovary.

31. Dr. Engelmann summarizes our knowledge of *primary cancer of the body of the uterus*, and relates a case in which abdominal hysterectomy was attempted, but in which, after opening the abdomen, such formidable complications were found to exist that he reluctantly yielded to the unanimous opinion of several eminent surgeons who were present, and closed the incision. Although the uterus was freely movable, it was bound to coils of intestine by old, unyielding adhesions; the omentum was enlarged and firmly adherent to the whole anterior wall of the abdomen below the umbilicus; and the bladder, elongated and drawn upward, was attached to both the omentum and the abdominal wall. He relates that erasion with the curette, which he looks upon as in general sure to give temporary relief, failed in two instances of cancer to afford even that result in his hands. He considers Freund's operation feasible, but only to be attempted in the earlier stage of the disease, when the affection is strictly confined to the body of the uterus.

32, 33, 34. Mr. Spencer Wells's successful *abdominal hysterectomy during* *pregnancy* was fully narrated by him at a meeting of the Royal Medical and Chirurgical Society of London. [It was briefly alluded to in our last Monthly Report—by inadvertence, in the obstetrical portion of the report. In reality the operation was done for cancer, and not as a method of delivery; it was therefore essentially Freund's operation, and to style it "Cæsarean hysterectomy," as we did on the occasion referred to, was misleading.] The patient was thirty-seven years old, the mother of five children, and six months pregnant, affected with epithelioma of the cervix. The uterus was brought out through an incision eight inches long, and was separated from the bladder after the main arteries had been tied on each side; the liquor amnii and the fœtus were extracted through the anterior uterine wall, the vaginal attachments were separated, and the organ was then removed, all bleeding vessels being tied, and the communication between the vagina and the peritoneal cavity being closed with sutures. The abdominal wound was closed in the usual way. Antiseptic precautions were carried out, including the use of phenol spray. The case was believed to be the first one of excision of a cancerous gravid uterus followed by recovery. ═══ Dr. Graily Hewitt, who had shared with Mr. Wells the responsibility of advising the operation, stated that there was unmistakable epithelioma of the cervix, rapidly progressing, but as yet limited to the cervix. The patient was in a very depressed and prostrate condition from loss of sleep and almost constant pelvic pain, with a brownish, irritating discharge. She was supposed to be a little over four months pregnant, but it turned out that she was further advanced. Three courses of procedure were considered: the induction of abortion, followed by amputation of the cervix; the removal of the whole uterus at once; and to allow pregnancy to proceed to the period of viability, then to effect delivery, and afterward to deal with the cervical disease. The possible bad effects of inducing labor at once, and then necessarily resorting to the further operation of excising the cervix, led to the abandonment of that idea. On the other hand, in view of the rapid progress of the disease, there seemed but a faint chance of extracting a viable child ***per vias naturales;*** vaginal delivery would imply laceration of the cervix, and the Cæsarean section might even be found necessary; moreover, the delay involved would subject the patient to the continued advancement of the disease. Immediate excision was therefore decided upon, notwithstanding its extreme danger, as, in the event of its not proving fatal in itself, it would give a better chance of a considerable prolongation of life. There would seem to be greater risk of injuring the ureters in this operation than in Porro's, but the cervix was freed from the adjacent tissues by tearing rather than cutting. ═══ Dr. Duncan thought that Mr. Wells's operation had an advantage over that on the unimpregnated uterus [wherein, he does not seem to have stated]. ═══ Mr. Knowsley Thornton called attention to the simplicity and efficiency of the means adopted by Mr. Wells for the control of hæmorrhage: he simply tied ovaries and tissues in the broad ligament, securing the spermatic vessels; and on the one side he probably also secured the uterine artery, for only one vessel (the right) spouted afterward. This pointed to an important simplification of the operation by securing these vessels at once, and also by leaving very few silk ligatures in the peritonæum—a great drawback in Freund's operation. Contrary to Mr. Wells, he regarded drainage as especially necessary in such cases, and much of the risk of septicæmia might be escaped by having a second operator to manage the vaginal portion, so that the same one should not do the abdominal part as well. ═══ Mr. Wells did not agree with Mr. Thornton as to tying the spermatic and uterine arteries in the same ligature, the distance between them being considerable. It was difficult, as Schröder had told him, to tie them without tying the ureters also; therefore he was careful not to tie more than the spermatic artery, and thought it would be difficult to tie the uterine artery before its division.

QUARTERLY REPORT ON SURGERY.

No. IX.

By CHARLES B. KELSEY, M. D.,
SURGEON TO ST. PAUL'S INFIRMARY FOR DISEASES OF THE RECTUM.

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5. Dr. Wolberg, from an analysis of forty-three cases, and from certain original experiments of his own, has reached the following conclusions regarding *the suture and the regeneration of nerves:* 1. Healing by primary intention is possible. 2. Suture is indicated in all recent cases of nerve division; in old cases, only when the severity of the nerve symptoms renders it necessary, and when all other methods of treatment (massage, electricity) fail. 3. Direct suture is preferable to overlapping, because, while the dangers and the facility of operation are the same, the former secures better coaptation of the nerve ends—a thing of the utmost importance in the result. 4. When healing by primary intention is not secured by suture, the latter may nevertheless assist in the nerve regeneration. 5. For nerve suture the author uses his own nerve needle and chromic gut.* 6. In the degeneration of the peripheral ends of the nerve sections, following section or crushing, only the nerve center is affected and absorbed; but the axis-cylinder and sheath of Schwann remain intact. 7. The regeneration of the new nerve elements in the severed nerve ends takes place out of the cells of the neurilemma of both sections. 8. The degeneration and the regeneration of the nerves take place simultaneously. 9. The degeneration goes on in the entire peripheral nerve sections at once; the regeneration, on the other hand, goes on in a centrifugal direction. 10. The normal (in contradistinction to the supplemental) functions of the nerves return under this regeneration, and the trophic changes disappear.

9. M. Calmettes relates an interesting case of severe and frequently repeated *epistaxis* in which, after removing several small polypi without benefit, he finally discovered on the ala of the nose a small black spot which he supposed to be a clot. After cleansing the nostril with cotton, he touched this clot with a probe and caused a gush of arterial blood. The nose was tamponed, and after half an hour again cleansed, and the new clot which had formed at the same point was touched with the galvanic cautery, causing a few drops of blood to flow. The next day the cauterization was repeated on the same point to completely destroy the vessel. The case is interesting as showing what can be done in diagnosis with the rhinoscope, and from the fact that only two similar cases have been reported, both by Michel, of Cologne, and both cured in the same way.

12. Mr. Savory opened the discussion on *the causes of failure in obtaining primary union in operation-wounds, and on the methods best calculated to secure it*, by maintaining that by placing freshly cut surfaces in their natural state in careful apposition, and by securing them in undisturbed apposition, primary union was most apt to be secured. Over-anxiety about union of wounds, and consequent manipulations which involved their disturbance and irritation, often brought about more or less failure in obtaining the desired result. Rest, scrupulous local and general cleanliness, and protection against septic influences, were the principles upon which the treatment of operation-wounds should be conducted; but there were innumerable varieties of pure detail in the dressing of surgical injuries, all valuable in so far as they secured the fulfillment of each of the three

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* "Centralbl. f. Chir.," 1880, No. 40.

essential conditions without being at variance with the two others. The clinical detection of septic infection of a wound was an interesting question; and it was important to decide whether high temperature, suppuration, or bad odor, was the best proof of such a complication. Mr. Savory declared that the tables showing the statistics of blood-poisoning after operation or injury in St. Bartholomew's Hospital for the years 1876–'8, brought forward by him in his address to the British Medical Association at Cork, two years ago, had not been surpassed in good results since then, although success equally great had been obtained through methods infinitely different in detail, although more or less identical in principle. ═══ Mr. Gamgee spoke in favor of gentle manipulation, drainage, dry and infrequent dressings, pressure, absolute rest, the insuring of the maintenance of accurate apposition of the surfaces and edges, and preventing the effusion and accumulation of fluids within or near the wound. Primary union might be favored by control of the circulation, effected by position, elastic compression, and immobility. Absorbent gauze and cotton dressings were valuable for surface-drainage, and, being highly elastic, facilitated soothing, uniform, and safe compression. Antiseptics, always useful in the treatment of wounds, were most called for in conditions where effusion and accumulation of rapidly decomposable products could not be prevented by position, pressure, or drainage, as in cases of psoas abscess and empyema. ═══ Dr. Humphrey dwelt upon the causes of failure. These he described as the delicacy and sensitiveness of the tissues in infantile and early life, which rendered them liable to inflammation and ulceration upon slight irritation; the deficiency of the nutritive energy necessary for the healing process in the atonic and aged, observed most especially in the lower limbs when there was disease of the arteries; and, lastly, the presence of foreign substances in the wounds, especially blood or bloody fluid, which separated the surfaces and had a tendency to decomposition. ═══ M. Verneuil said that the attempt to secure primary union was sometimes essential and necessary, and sometimes altogether optional. When the latter, the surgeon should ascertain, before aiming at such union, that the patient was not the subject of some morbid state which would make it more advisable, in his case, to give up or postpone the attempt, thereby avoiding the risk of a failure, which was not without danger. ═══ Professor Volkmann did not much believe that the healing of a wound was influenced to any important extent by the constitution of the individual, and he believed that the formation of pus was due in all cases to septic influences. ═══ Professor Lister said, in reference to the observations made by Dr. Keith at a former debate on the intra-peritoneal treatment of abdominal tumors, that he wished it to be understood that the department of surgery then in question was not the touchstone of his system, as was too often supposed. Wounds of the peritonæum healed with great rapidity, and that membrane reabsorbed its own exudations with speed and facility; on the other hand, carbolic acid abnormally increased effusion and checked reabsorption. As recent experiments had shown, serum, clear or bloody, was a very poor soil for the development of germs from contact with air-dust, and blood-clots were still more sterile; indeed, it was very difficult to make them grow or develop at all, unless diluted with water. Solid bits of dirt were the great sources of danger, rather than certain invisible particles that floated in the air, and had been invested, perhaps, with more deleterious functions than they really possessed. He had not, up to the present time, given up any of the details which collectively made up what was understood as his system, because he had obtained such good results; but he was not sure that he might not, before the next meeting of the congress, give up the spray; only, at the present date, he had not contrived any method of simple washing or irrigation that would be an effective substitute. He paid great attention to the general condition of the patient and to the hygienic condition of the ward; and, had he neglected such precautions, as it had been alleged was the tendency of Listerism, his avowedly successful results would have demonstrated all the more the high efficacy of his local treatment.

20. M. Verneuil, after a careful study of *the probabilities for and against the immediate union of wounds*, and of the indications which render it advisable to seek for such union, arrives at the following conclusions: 1. Immediate union is sometimes fundamental and obligatory, sometimes only an accessory to an operation. 2. In the two cases it presents very different indications and very different degrees of utility, but always the same chances of failure and the same dangers. 3. It is necessary to accept the chances and the dangers, seeking to diminish them as much as possible, in the cases where immediate union constitutes the whole of the operation. 4. Before associating with any operation an immediate union, which is simply secondary and accessory, it is best to search and discover whether the wounded person be not the subject of some constitutional state which makes it better to reject or postpone such union. 5. If such a state is recognized, it should be combated by appropriate measures, but if it can not be overcome it is best not to make an attempt at a union which will probably be futile and dangerous, but to employ some other dressing, which in default of a rapid cure offers at least more security and safety.

24. Professor Lister, in opening the discussion on *the relation of minute organisms to wounds*, said it was necessary to give a word of caution against the tendency to exaggerate the importance of micro-organisms as the cause of inflammatory and other morbid processes. For, while there could be no question as to the important part played by micro-organisms in the production of inflammatory disturbances, there were other chemical and mechanical conditions which could produce inflammation, and, above all, there was such a thing as inflammation produced through the nervous system, a doctrine which was the foundation of much of our surgical practice. He had seen an inflammation of the urethra give rise to suppression of urine, and terminate fatally; and at the post-mortem he had found the kidneys presenting the most intense inflammatory congestion, without any appearance of old disease or of extension of the disease by continuity. Such inflammation could only be produced by the nervous system and the sympathy which united the parts. It was upon this fact, or its converse, that the principle of counter-irritation was based. He then proceeded to speak of the researches of Dr. Koch, and more especially of those of Dr. Ogston, who had invariably found numerous micrococci in the pus and pyogenic membrane of acute abscesses. These were not to be regarded as the essential cause of the inflammation, as the same observer had also recorded that these organisms were always absent in chronic abscesses, and it was therefore probable that their occurrence in the pus of acute abscesses was rather the consequence of the disturbed nutrition of the parts. Mr. Watson Cheyne had proved that no micro-organisms existed in healthy tissues; it was, therefore, necessary to believe that their appearance in acute abscesses was the result of lowered vitality of the parts. ═══ Dr. Bastian held two views in regard to the origin of this low form of life: one was heterogenesis, by the combination of molecules of already organized life into new forms of living beings; the other was what he called archebiosis. If Professor Lister was right in saying that living tissues contained no micro-organisms, then those found as described must have been formed *de novo* by a process of heterogenesis. Dr. Bastian related some experiments to show that micro-organisms would appear in healthy brain when its vitality was lowered, although all possibility of their entrance from without was excluded. ═══ M. Pasteur protested strongly against the theory of the origin of micro-organisms in the tissues. His own experiments altogether disproved such a view. ═══ Professor Virchow thought the most important question to be decided was that of the specificity of such organisms. He had observed what was apparently the same organism under very varying conditions, as in the angina of scarlatina, small-pox, etc. When such cases were studied merely in the light of pathological anatomy, every one agreed that the pathological process was the same; but with the doctrine of micro-organisms as a cause of disease came the suggestion to search for a specific form in each case. ═══ Professor Büchner, of Munich, believed he had shown that the hay bacillus acquired virulent properties from being cultivated in albuminous fluids; and Dr. Grawitz, of Berlin, had observed the same of aspergillus. M. Pasteur had renewed the doctrine of predispositions, which was in some danger of falling into discredit. He had shown that certain media were favorable or unfavorable to the development of certain poisons; and it was upon this principle that Mr. Lister had based his treatment. Micro-organisms acted on the tissues in several ways. They might enter the cells and multiply there, devouring and destroying the cell-substance; or they might multiply between the cells, giving origin to acrid secretions which acted chemically on the tissues; or they might give rise to similar secretions in the hollow viscera, as in the stomach, which might act locally by disturbing the normal functions and causing pain and pathological alterations. The action of some micro-organisms so closely resembled chemical action, that until within the past few years he would not have attempted to distinguish a diphtheritic inflammation from a slight cauterization produced by a mineral acid.

44. Mr. Robson's paper deals with the author's experiments in finding *a substitute for the carbolic spray* in antiseptic surgery. More than a year ago an apparatus was devised which created a current of air by means of a fan set in motion by clock-work, the air passing through layers of gauze moistened in a one-to-forty carbolic solution. From experiments with this the author concluded that, though the carbolized air was aseptic, it was not antiseptic. The next step in the experiment was to saturate the air with some more volatile antiseptic, as oil of eucalyptus, cajuput, or peppermint, and by diffusing such an atmosphere in the room accomplish all that the spray would do, with none of its disadvantages. By experimenting with such a vapor the author concluded that it was a complete antiseptic at ordinary temperatures; that all infective particles might be killed by it, and perhaps also the germs of fevers and other infective diseases. In an ordinary operating-room there would be no difficulty in having a large pair of bellows, worked by hydraulics, to pump a continuous stream of air, which might be carried to any part of the room by means of a flexible tube; the air having been forced through two or three wash-bottles containing pumice stone and the volatile oil. If the end of the tube have a large bell-shaped opening, the air will diffuse itself over a radius of many feet. Perhaps there may be no need of an apparatus if it can be proved that the air of a room saturated with the vapor is free from germs; for then all that would be necessary would be to have some evaporating dishes containing the volatile antiseptic distributed in the operating chamber. The author hopes before long to give the results of further trials with oil of peppermint, terebene, and other volatile bodies.

45. Dr. Fenger and Dr. Hollister have made a very interesting study of the question of *drainage of cavities in the lungs.* [They attribute the idea of thus treating lung cavities to Professor Mosler, of Greifswald, who first practiced it; and he may have originated it; but we have seen it urged forcibly and frequently by Dr. James R. Leaming, of New York, during the past ten years.] There have always been many points in favor of such surgical interference. The walls of such cavities are generally adherent to the chest wall, and an opening can, therefore, be made without risk of communicating with the pleural cavity; and infection of still healthy lung tissue may be prevented by the removal of cheesy matter from phthisical cavities. There would seem to be no reason in the nature of the case why, when the contents of a cavity in the lung resulting from an acute pathological process, such as abscess or gangrene, are removed, cicatrization should not result; or why, in cavities due to tubercular disease, the general condition of the patient should not be greatly improved. The number of cases of cavities due to acute processes, in which drainage has been resorted to, is now six, and of these only one has been completely successful and terminated in recovery—the one reported by the authors of the present article. But in some of the cases that terminated fatally immediate though temporary improvement followed the operation to a very encouraging extent. In the article all the cases are given as fully as they are known. The author's case was one of large fœtid cavity in the middle lobe of the right lung caused by suppuration around a large echinococcus cyst. Two openings are recommended, one in the most superficial and in other respects most accessible portion of the cavity, and the other in the most dependent portion possible, as determined by careful exploration through the primary opening. A soft drainage tube is preferable to a hard one, as less likely to cause ulceration of surrounding lung tissue. The cavity should be gently washed out with weak carbolic solution, and the wound dressed antiseptically, the dressing being changed as often as the discharge may make necessary—once every few hours or once in twenty-four hours. The drainage tube should not be removed till the cavity has filled up and the discharge has stopped.

75. Dr. Johnston's report of a case of *obturator hernia*, in which the diagnosis was made before death, and a suitable operation was undertaken for its relief, is worthy of notice. The patient was a woman aged fifty-eight years, suffering from the usual symptoms of intestinal obstruction. Physical examination at first revealed nothing, but with great care a flat, ill-defined swelling as large as a crown-piece was found a little below the usual site of a femoral hernia on the right side. It could not be moved in any direction, nor could the fingers be insinuated around or under it. A crucial incision was made over this tumor, and its coverings were dissected off. Two large vessels, branches of the external pudic and obturator, were divided and secured. The pectineus muscle was thus exposed, but the tumor was as indistinctly felt as before the commencement of the operation. On lifting and turning aside the edge of this muscle, the tumor, of the size of a pigeon's egg, was exposed, lying upon the margin of the adductor brevis, but not in any degree overlapped by it. The swelling had assumed a globular form and all the attributes of a hernial tumor immediately on the removal of the pressure of the muscle. Without opening the sac, the stricture formed by the sharp edges of the obturator ligament was notched in a direction directly upward. After this incision the swelling continued as large and as tense as before, and the probe-pointed bistoury was again introduced and a slight incision made inwardly. The margin of the obturator foramen felt as hard and sharp as the edge of a knife. The forefinger could now be carried through the enlarged opening into the pelvis with freedom. The tumor at once, and without manipulation, became flaccid. It still, however, gave the impression of consisting of something more than the sac, which was opened and found quite empty; but its walls were so thick, hard, and elastic, that the edges of the wound retracted to such an extent that the whole interior of its cavity could be distinctly seen at the bottom of the deep wound. It did not contain a drop of fluid. It was found absolutely necessary to divide the pectineus muscle to the extent of two and a half or three inches to afford space and a view of the parts. Taking into consideration the possibility of bowel and sac having been agglutinated, and of the former having been wounded, the edges of the sac were carefully stitched to the margin of the external wound, and a pad of lint soaked in carbolic oil was applied and retained by a bandage. For four days the patient's condition was hopeful; but after this she gradually sank and died on the eleventh day after the operation and fifteenth of the attack. Post mortem, very little repair was found to have occurred in the wound. The thickened sac showed as much elasticity and gaped as much as when opened. The finger passed through it easily into the pelvis. The small intestine was found moderately distended with flatus. There was no effusion of any kind. A coil of small intestine of an ashy-gray color, and which had lost its shining appearance, was found adhering to the lining of the pelvis immediately external to the obturator foramen. On one side of this adhesion the bowel was moderately distended, on the other empty. On using very gentle traction the distended bowel gave way and a free escape of liquid fæces took place. A rent about two inches in length had occurred immediately above this adhesion; but, the bowel having collapsed after bursting, it was found difficult to determine whether a band encircled its entire circumference, or whether one side only had been glued to the pelvic peritonæum.

79. Dr. Williams's *case of recto-vesical fistula and fæcal calculus* is particularly valuable on account of the care with which it is reported, and the fullness of the post-mortem examination. The patient was a man aged 79 years. His illness dated back about a year and a half, and began with great pain on urination and the passage of water in driblets. To these soon were added symptoms of stone. For the past year frequent urination by day and night had been the chief symptom. There was no family taint, and the patient's health had generally been good. Around the anus hæmorrhoidal tumors could be felt. The prostate was enlarged and tender, but not unduly hard, and there was nothing else to be detected by rectal touch. There was no hypogastric dullness, and, when a full-sized elastic catheter was passed, there was no obstruction, but a little bloody urine was withdrawn. The diagnosis of malignant disease of the bladder was made, and just before death a small amount of urine seemed to be passed *per rectum*, and the diagnosis of perforation from the bladder to the rectum was also made. At the autopsy the peritonæum was found normal. Viewed *in situ*, the bladder appeared small and projecting, but otherwise normal. It felt rather firm, as though containing some not very hard substance. The kidneys were slightly diseased; the ureters normal; the bladder small, and its walls slightly thickened; the three lobes of the prostate were considerably and pretty equally enlarged, and were of normal consistence; the urethra was normal throughout. On opening the bladder its cavity was found full of a brownish-black material of a doughy, and in parts coriaceous consistence, made up of irregularly-shaped pellets of about the size of large peas, more or less firmly adhering together, presenting an appearance not unlike the so-called minced-meat. This substance formed a kind of cast of the interior of the bladder. It weighed one ounce and a quarter, and had a urino-fæcal odor. Microscopically, it consisted chiefly of cellular and granular masses, with much molecular *débris*. Besides this substance the bladder contained only a small amount of turbid urine. There were no phosphatic or other incrustations. The trigonum vesicale was superficially ulcerated, especially the cul-de-sac behind the enlarged prostate; otherwise the mucous membrane was healthy with the exception of a few patches of injected vessels here and there. On each side of the base of the bladder were several small hernial protrusions of mucous membrane between the muscular fibers. At a point one inch and a half above the orifice of the left ureter, on the left side of the bladder, there was an adhesion between this viscus and the middle portion of the rectum. Here a small opening, admitting a crow-quill, at the bottom of a pit in the vesical mucous membrane, led directly into the rectum. There was no sign of recent disease; no enlarged glands could be detected. The rectum was dilated, but otherwise healthy. The condition was probably due to an abscess starting in one of the vesical sacculations—the result of the enlarged prostate—and bursting into the rectum. The contents of the bladder were evidently altered fæces from the lower part of the bowel, which had entered in small quantities at a time, and had been prevented from escaping by the enlarged prostate, thus cohering and forming what the author has called a fæcal calculus. In this respect the case seems unique. The condition of the urinary organs is sufficient proof that there had been no obstruction to the flow of urine, and, as the prostate would assuredly have caused such an obstruction, had there been no artificial outlet, a considerable quantity of urine probably passed through the rectum during the last months of life. The case affords a good example of the discrepancy often existing between the actual condition and the symptoms, and it often happens in these cases that the diagnosis is first made after death. Many of them present few, if any, early symptoms. In one case * the earliest symptom was rectal discomfort after urination. A little later there was pain over the pubes and in the left hypogastric and iliac regions. Then came a muco-sanguinolent stool, after which the symptoms subsided for several months. In one of Bryant's cases † the symptoms began, three months before the patient came under treatment, with diarrhœa, tenesmus, and muco-sanguinolent stools. There was a great improvement for a considerable interval, after which unmistakable signs of the disease set in. In another of his cases the first symptom noticed was the passage of wind by the urethra, and for more than two years there was no other symptom. In the case now reported the only really valuable sign was the passage of urine *per anum*. The opening being tolerably high up, the urine was probably retained some time in the rectum, and thus the dilatation of the rectal pouch is accounted for.

80. Mr. Morgan's cases well illustrate a *deformity of the anus* occasionally seen and easily remedied. In the first case the anus was of the usual size and in its proper position; but there was found to be a band of tissue passing from a point corresponding to the apex of the coccyx to the median raphé of the scrotum, with the posterior extremity of which it was continuous. The band was about three quarters of an inch long, and was attached at both ends, the remainder forming a thick free cord which lay below the aperture of the anus, while from the center of this band there ran a small branch of similar tissue which was attached to the skin of the left buttock, and was about half an inch in length. The skin covering the central band exactly resembled that of the scrotum, shrinking and contracting upon stimulation; and it was so placed that any passage of fæces must cause it to be stretched, thus accounting for the pain attending each motion of the bowels.═══The second case was similar. The child was born with an imperforate anus, but the membrane gave way spontaneously. The child, however, continued to suffer pain on defecation, and on examination there was seen a small thick band passing from the median raphé of the perinæum in front to the depression between the buttocks posteriorly, and broadest behind. At a spot corresponding to the anus on either side of the band was a depression; that on the right side was patent, and allowed a probe to pass into the anus; that on the left side, though similar in appearance, proved only a cul-de-sac.═══In the third case there was a depression at the usual site of the anus, and the parts around were so far natural that the skin was pigmented and puckered, but there was no communication with the rectum. The spot at which the fæces passed was in the middle line, half way between the depression and the posterior commissure, but nearer the latter than the former. The opening was very small, and a probe passed up into it showed that there was plenty of tissue between the passage and the vagina. The cure consisted in enlarging this abnormal opening posteriorly into the depression for the natural one.

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* Morison, "Trans. of the Path. Soc. of London," xxx, p. 326.

† "Trans. of the Clin. Soc. of London," 1872, p. 127.

81. Mr. Baker opened the discussion on *the diseased conditions of the kidney which admit of surgical treatment* by a paper based on three cases. In the first, nephrectomy was performed on a sacculated kidney in a child of seven years, and a drainage tube was inserted through the wound. The wound was afterward enlarged and the kidney removed, the child recovering, but with symptoms of disease in the remaining kidney. In a lad aged 16, nephrotomy was performed through the loin for an enormously dilated kidney, which varied in size. An incision was made in the loin, when the tumor was apparent, and thirty ounces of purulent urine were withdrawn. With drainage through the wound by means of an elastic tracheotomy-tube, very beneficial results were obtained. Lastly, in the case of a feeble woman, aged 48, with a swelling in the right renal region and purulent urine, a puncture was made into the swelling and the pus was drawn off. Three weeks later a lumbar incision was made, and a large branched calculus was removed, with difficulty and with much hæmorrhage, from the kidney, which was sacculated. The patient never rallied, and died three days later.

82. M. Carafi has recommended certain *modifications of Kocher's method of reducing dislocations of the shoulder-joint*, to render it applicable to intracoracoid luxations. Kocher's method is as follows: The patient being seated on a bed or chair, an assistant fixes the shoulder-blade on the affected side by placing one hand on the shoulder and seizing with the other the axillary border of the bone in the axilla. The surgeon then takes the elbow, semi-flexed, and by the first movement brings it closely in opposition with the wall of the chest. Keeping the arm in contact with the chest, he executes the second movement by rotating it outward, the movement ending when the forearm is on the transverse plane of the trunk. By the third movement the elbow is brought to the front of the sternum, the rotation being preserved. By the fourth, the limb is restored to its natural position by passing it over the anterior face of the chest, from the sternum to the lateral wall of the thorax. The modification consists in this: Instead of making the third movement immediately after the second (rotation outward), the second is exaggerated, increasing the rotation outward a little, and holding it for a minute or a little less; a peculiar crepitus is then felt, which indicates that the head of the humerus has left its abnormal position, and when the third movement is practiced it instantly slips into the glenoid cavity.

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No. VII.

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6. Mr. Marsh, in some remarks on *the treatment of caries of the spine in childhood*, states that, in trying to ascertain what the main principles in the management of these cases are, we may turn to cases of inflammation of other joints. The nature of the disease is very similar in all joints, and the indication for the treatment is *rest*. It is agreed that an inflamed knee joint must be kept at rest and the patient is prevented from bearing any weight upon the limb by an apparatus. In regard to the spine, when a patient with spinal caries is supplied with a Sayre's jacket and allowed to go about, How are the functions of the column performed? How is the weight above the seat of disease supported and transmitted to the pelvic arch? Either the patient is using his spine, or he is using the instrument instead of the spine. The author discusses the question, How does the jacket support the weight of the spine above the point of disease? He claims: 1. That there must be an efficient basis on which the jacket may rest. 2. That the jacket must have a secure hold on that part of the column which it is required to sustain. He holds that the pelvis is not able to give a sufficiently firm basis of support, that the bony points are not developed, and that the advocates of this method always aim to protect these points from pressure. In regard to the second proposition, that the jacket must have a secure hold on to the column, it is evident that this is an impossibility—no patient could stand such an amount of pressure. He comes to the conclusion that the jacket, not the spine, is passive—that it only adds to the weight which the spine is called upon to raise, and that it is useless as an apparatus to take off pressure from the diseased point, and in the cure of the disease. He then refers to his own experience in the use of the jacket, and states that the deformity has increased, and that he has never seen a case in which the disease has been arrested, even when the jacket has been applied in the early stage, or any case in which cure could be attributed to this method. As to the jury-mast, he has never succeeded in rendering it useful. Having come to these conclusions, he thinks that complete recumbency is the best plan. [We think that the author has fallen into an error in regard to the action of spinal supports. Although

Dr. Sayre claims for his method that he can extend and maintain separation of the diseased surfaces by means of a lifting action of the jacket, yet the vast majority of orthopædic surgeons do not agree with him. Arguing, therefore, from Dr. Sayre's standpoint, it is certainly true that the spinal jacket is entirely useless as an extending apparatus in the sense of pulling the bodies of the vertebræ asunder by lifting them, and that the jacket takes no firm and immovable basis of support from the pelvis to build up an extending apparatus. Nor can it be applied close enough to fix the ribs and take bearing on them. The action of the jacket, and of all spinal supports, if they are properly constructed, is to throw the weight of the body *above* the point of disease backward so that it is sustained by the lateral processes, and in this way extend the spine and take off to a greater or less extent the pressure from the point of disease, for in this way only can the spinal column be *extended*. Whether the jacket accomplishes this better than any other form of support, is another question.]

8. The following *method of excising the shoulder joint* is advocated by M. Polaillon for disease of that articulation. An incision is made down on to the acromion, beginning at its posterior border and extending outward and then inward to a point one centimetre to the inner side of the acromio-clavicular articulation, and the insertion of the deltoid is detached; from the anterior extremity of the incision another is made downward, following the direction of the long head of the biceps, nine and a half centimetres long. This incision is made with care, so as not to injure the tendon of the last-mentioned muscle; the flap thus formed is turned back, thus giving easy access to all parts of the cavity of the joint. The advantages of the method are: 1, the fibers of the deltoid are not divided; 2, the preservation of the circumflex nerve, thus preventing paralysis of the deltoid; 3, the ease with which access is gained to the joint.

9. Mr. Lucas reports the following case of *excision of both elbow joints* in a boy ten years of age. The right arm was semi-flexed, and there was slight passive motion in the elbow. There were several sinuses about the joint, discharging pus. The trouble dated from a fall on his right hand one year before coming under observation. This was in 1876. Mr. Lucas resected the joint, and the patient was discharged in five months with some sinuses still open and some stiffness at the joint. The healing of the wound was retarded by several attacks of erysipelas. After his discharge several abscesses formed about the excised joint. In 1879 he was readmitted. The right elbow had become firmly anchylosed at an angle of 100°. There was also disease of the left elbow joint, dating back twelve months. At the time of coming under observation an abscess had formed and been opened; there was considerable heat and pain about the articulation. The joint was excised, the periosteum being stripped off. The operation was done antiseptically. In five months the patient was discharged with one sinus not closed. He had good power of flexion and extension; pronation and supination caused pain. One year later he was seen with an abscess over the upper part of the right humerus. The left elbow was in good condition. The condyles had been completely reproduced, so that the normal width of the joint at the elbow was preserved. To a certain extent the olecranon process was restored. The movements of the false joint were almost as complete as in the normal elbow.

10. M. Verneuil points out *a cause of deformity after the cure of hip-joint disease.* Five years ago he attended a child nine years of age for a coxalgia of rheumatic origin, which seemed to be completely cured, without any deformity, after three years and a half of treatment. A small abscess formed and was opened. Five months later she was re-examined and declared cured. The lordosis had disappeared, and there remained only a slight stiffness about the joint. Six months later she was noticed to limp. On examination, there was found a slight lordosis, with some flexion of the thigh on the pelvis; there was no pain or any inflammatory symptoms. There was atrophy of the gluteal muscles, which were also paralyzed; and the deformity was due to contraction of the adductors, the psoas, the sartorius, and the flexors of the thigh. Under an anæsthetic, perfect symmetry of the limbs was proved to exist. The patient was provided with an apparatus, and faradization was applied to the gluteal muscles. This observation explains the fact of a return of malposi-

tion after cure of a coxalgia without any inflammatory symptoms, and that it is due to a weakness of certain muscles on account of their atrophy. The author advances the following theory in explanation of the malposition of the thigh in hip-joint disease: In the first period the articular inflammation is propagated to the muscles immediately in contact with the capsule of the joint—namely, the psoas and iliacus, and the gluteus medius and minimus, causing abduction, rotation outward, flexion, and lengthening of the thigh. In the second period the inflammation is propagated to the second layer of muscles, the adductors, and the result is rotation inward, adduction, and increased flexion.

14. Mr. Berry contributes a short paper on *the growth of bone in knee-joint disease*, based on measurements in ninety-two cases. Of these, sixty-eight were of articular osteitis, and gave the following results: In 2 cases, 1 inch lengthening; in 10, ¾ inch; in 19, ½ inch; in 18, ⅜ inch; in 8, ¼ inch. In six there was an average shortening of ⅜ of an inch, while in five no change in length was appreciable. In 24 cases, in which the morbid process was situated primarily within the synovial membrane, there was found but little alteration; in 5 cases, ⅛ inch elongation; in 3, ⅜ inch shortening; in 2, ½ inch shortening; in 14, no alteration. [There is an element of error in the foregoing which, although mentioned by the author, is not given its full weight. We refer to congenital inequality in the length of the lower limbs. In some measurements we have made in children and adults in whom there was no articular disease we have found about 30 per cent. with one limb shorter than the other. In order to make the author's statistics more accurate, the measure of 92 perfectly healthy children should have been given.]

15. Mr. Bankart reports the case of a boy sixteen years of age, who came under observation with *exostosis of the femur, situated just above the knee joint.* It was first noticed two months previous. It gave him some pain and inconvenienced him in his work. An incision was made over the swelling, so as fully to expose it. It was found necessary to make a small opening into the joint, so as to get at the base of the growth; it was then detached with bone-clippers and a gouge. It was found to be partly soft bone and partly cartilaginous, with a soft cartilaginous surface attached by two pedicles to the anterior and outer surface of the femur, within the joint. The patient made a good recovery.

19. M. Ménard publishes the result of his experimental researches upon "*redressement brusque*" *at the knee by means of Collin's instrument for genu valgum.* In 1874 Delore reported 200 cases of genu valgum in which he had corrected the deformity by forcibly bending the leg inward. He reports no accident, and the result in the majority of cases was favorable. Barbarin, in 1873, reported some experiments on the cadaver, in order to ascertain the lesions produced by this method. They were as follows: 1, separation of the articular surfaces; 2, tearing of the periosteum by the external lateral ligament; 3, separation of the epiphyses of the femur, the tibia, or the fibula; 4, crushing of the internal tuberosity of the tibia. Terrillon and Farabeuf maintain that the articular ligaments are not injured by this method of operating. This is an important point, for if the ligaments are detached the deformity is not removed, because it allows the leg to be brought to its normal axis without any change in the bony parts. In Delore's method the force requisite to correct the deformity is often very great, and is applied for a long time. The direction of the force is often wrong, as it is almost impossible to keep the knee fully extended during its employment. In order to obviate this, and relieve the operator, M. Collin has devised an apparatus with which "redressement brusque" is accomplished easily, without effort on the part of the operator; the application of the force is steady and irresistible. Experiments were made on the bodies of children affected with knock-knee who had died of some acute disease. Their ages varied from two to six years. Twenty-eight were performed by the aid of Collin's apparatus, and twelve by manual force according to the method of Delore. It was found that in a certain number of cases, even when the leg had been bent inward considerably beyond the normal, on examining the parts there was neither lesion of bones nor tearing of the ligaments. This occurred only in very young children. In older children the following lesions were found: 1. The periosteum was torn on the external and posterior aspect of the femur above the epiphysis; it was never detached at its point of insertion into the epiphysis. It was generally torn transversely 2, 3, or 4 centimetres above the epiphysal cartilage. The reason for this is that the periosteum on the middle of the femur is very thin, and gradually increases in thickness as it approaches the epiphysis, where it acquires considerable thickness; and its resistance is increased with its growth. Of the 28 cases, in 6 no lesion was found; in 21 there was a detachment of the lower end of the femur—11 total, 10 partial; in 1 case there was an incomplete fracture of the femur. In the separation of the epiphysis the epiphysal cartilage remains attached to that part, and not to the shaft of the femur. In the two classes of cases, complete and incomplete detachment of the epiphysis, in the first the epiphysis is movable on the diaphysis, but more so on its external and posterior aspect than on its anterior and inner. This is due to the fact that the periosteum is detached in the former position, while in the latter it is adherent. In the second class the detachment of the epiphysis extends from without inward a third, a half, or two thirds of its length. The tibia and fibula were intact without fracture or displacement. The ligaments in all cases were intact. Of the twelve cases of "redressement" after the method of Delore, in eight cases there was separation of the femoral epiphysis; in two the femur was fractured; in two the bone was intact, but the external lateral ligament was ruptured. The detachment of the epiphysis was always accompanied by crushing of the internal portion of the diaphysis. The periosteum was torn, as in those cases where the osteoclast was used. In those cases where the ligaments were ruptured, once the external lateral, and once the anterior crucial, gave away. These results are attributed to irregularity in the direction of the application of the force. The author thinks that the solid grasping of the knee between the two concave clamps of the movable section of Collin's apparatus protects the joint. During the operation a cracking sensation is felt with the hands, but it is difficult to ascertain the extent of the lesion after the correction is made. There is not much more mobility after a partial separation than in the normal knee. When one application of the osteoclast does not remove the deformity—and this can be judged by the difficulty in maintaining the limb in the desired position—a second application is indicated. For a few days after an osteoclasis there is an effusion into the joint, but it soon passes off without any special treatment.

20. Mr. Stokes, in a paper on *excision of the knee joint for disease in children*, draws attention to the diversity of opinion among surgeons as to its merits, and expresses the opinion that the question of resection is not entertained until it is a question between this operation and amputation. The condition which, in his experience, constitutes the majority of cases that lead eventually to the necessity for knee-resection in early life, is that to which the terms granular, gelatinous, and pulpy thickening of the synovial membrane have been respectively applied. Among the ill-clad and ill-nourished poor, he believes this form of synovial degeneration, once fairly established, is not amenable to any form of expectant treatment. He dissents from the view of those who consider that incision, injections, and drainage in pulpy thickening fulfill all the requirements of resection and avoid its risks. In regard to shortening after excision, which has been brought forward as an objection against its performance, especially in children, he states that it does not coincide with his experience or with that of his colleagues. In pulpy degeneration he would operate before the bones are much involved, so that only a thin section is required to be taken from the ends of the femur and tibia, and the osteogenetic functions of the epiphyses are not interfered with. In this class he has never seen any atrophy of the limb. He uses Lister dressings. Among the accidents that may happen after resection of the knee is hæmorrhage, some hours later, from the freshly divided surfaces of the bone. In three cases he was compelled to reopen the wound and apply a chloride-of-zinc compress between the bones. He is inclined to attribute the hæmorrhage to the use of Esmarch's bandage. In conclusion, he lays down the following propositions: 1. Excision of the knee should not be looked upon as a last resource, but should be undertaken, if possible, before any profound organic changes take place. 2. Expectant treatment, to be efficient, must be undertaken at an early stage of the disease, and extend over a period of at least two years. 3. No better result than anchylosis can be looked for by this method. 4. In a patient with a predisposition to secondary tuberculous developments, the possibility of the recurrence of the disease after expectant treatment must be borne in mind. 5. In cases attended with prolonged suppuration, the chances of the occurrence of visceral, especially renal disease, must not be lost sight of. 6. Where the skin is unbroken, the disease limited, an efficient method of fixation applied, and a rigid system of antiseptic dressing of the wound adopted, primary union may, in the majority of cases, be anticipated. 7. When these latter conditions are fulfilled, excision of the knee joint can not be longer regarded as the formidable procedure it was formerly held to be. 8. The alleged unfavorable results of excision of the knee joint in early life are opposed by more extended clinical experience.

21. The value of *amputation in joint disease associated with phthisis* is pointed out by Mr. Bryant in the following case: The patient was twenty-three years of age, and gave the history of disease of the knee joint of three years' duration. The articulation was completely disorganized, and full of caseating pulpy material. There was dullness over both apices in front, and "cogged" inspiration at both apices, but it was most marked on the left side. He had a good deal of hæmoptysis, and his expectorations were muco-purulent. Amputation was performed just above the condyles. Two weeks later the wound had almost healed, leaving only an ulcer. All chest symptoms had greatly improved, and the lung was clearing up. The patient continued to improve for the three weeks longer that he was under observation. The author states that the case illustrates an important practical point—namely, the value of removing local suppurative disease, and, more particularly, bone or joint disease when associated with lung mischief; and, if it can not be said of this case, from the want of lapse of time to enable us to form a positive judgment, that the organic disease which existed in the lung at the time of the amputation had disappeared, there can be no doubt that it had become quiescent, and had apparently advanced toward cure. From his own observation he is convinced that the presence of local suppurative joint or bone disease, if it does not primarily originate lung trouble, does much to aggravate it and hasten its progress; the lung disease by its presence affords an argument in favor of operative action rather than of delay. In lardaceous visceral disease the same line of practice should always be followed. [Mr. Bryant reported cases in illustration of these views in the "Lancet" for January 4 and 11, 1879.]

22. Mr. Ransford's cases of *excision of the knee joint* are of interest. The first was that of a man 20 years old, whose left leg was much atrophied as the result of disease of the knee joint dating back ten years. The tibia and fibula were displaced backward and rotated outward, and firmly fixed there. The condyles of the femur were wholly removed, and a thin slice was taken from the tibia; the leg was then brought into a straight line with the femur, and fixed there. The operation was done antiseptically. In the evening severe hæmorrhage came on, due to general oozing. The wound was not dressed antiseptically again. The leg was removed from the splint at the end of six weeks, apparently firm; some sinuses remained, occasionally discharging little bits of necrosed bone. Two years later the amount of shortening was found to be seven inches, measuring from the anterior superior spine to the inner malleolus. ═══ The second patient, a lad of 15, had had disease of the knee for three years. He had been treated by rest, Thomas's splint, etc., but without staying the progress of the disease. The knee joint was excised under strict Listerian precautions. The whole synovial membrane had been converted into pulpy material, and the articular cartilage was eroded. At the end of two months the bones had not united, and the superficial wounds had not healed. The patient was sent into the country. One year later he was reported with a strong leg, which he could use without pain. The shortening was slight. ═══ The third patient was a woman, aged 22, whose disease dated back eighteen years. There was no history of injury. She complained of constant pain in the knee, but the joint was not much swollen. Her general health was good. The joint was excised. The whole cartilage had disappeared and had been replaced by granulations. The operation was done antiseptically. For several days afterward the temperature ran as high as 102° F. At the end of sixteen weeks the limb was not firmly anchylosed, although the patient was in good condition; some sinuses still discharged. Eleven months after the excision the limb had not become firmly anchylosed, although it was improving. The sinuses had closed. The patient was going about with a posterior splint. The operator states that the boy with seven inches shortening gets about well with an iron on his shoe—much better and more quickly than he could have done with an artificial leg. [He gives no explanation of the cause of tardy anchylosis in the two cases.]

23. Mr. Puzey reports the following interesting case of *scarlatinoid rash with high temperature after excision of the knee joint.* The knee of a man, 21 years of age, was excised for old-standing disease with some deformity. The operation was conducted on strict Listerian principles. Vomiting lasted more or less persistently for four or five days. On the ninth day after the operation the temperature rose to 104° F. at noon. The wound looked perfectly healthy, being all healed except where drainage tubes were inserted. For the next three days the temperature was normal. On the sixteenth day it rose to 102·4°, and the patient had a slight chill. The next morning the temperature was 101·6°, there was a general scarlet blush uniformly distributed over the whole surface of the body, and the tongue was covered with a moist whitish fur; there was no redness of the fauces. The wound looked well. The temperature was 102·6°. The next morning the eruption was very bright and punctiform. There was vomiting of mucus and watery fluid. The temperature continued elevated. On the fifth day the rash had quite disappeared without desquamation, and the temperature had fallen to 99·8°. On the next day the temperature rose to 102°, and on the following day it reached 109°. For a few days it remained between 99° and 100°, and then mounted up suddenly to 106° at 8 A. M. the next day. It was 105° at 1 P. M.; a few hours later, 102°; and in the evening, 100·6°. At this time there was no apparent constitutional disturbance; the wound looked well, and there was only a trace of pus. After this there was nothing particular to note, except that the temperature remained abnormally high, never below 99·2°, and frequently 102°. There seemed to be no relation between the state of the wound, or the patient's general condition, and the variations in the temperature. The antiseptic dressings were continued for five weeks, and the man was kept in bed for twelve weeks. Mr. Puzey states with regard to the rash that it resembled that of scarlatina, yet that the throat was not affected, and that the conclusion was against that disease. Throughout the case there was a minimum of suppuration; there was primary and absolute union of the whole wound except where the drainage tubes were inserted. There was no after-exfoliation of bone, and until at least three weeks after the operation there was entire absence of smell and of bacteria from the discharge. The first rise of temperature took place several days before the exanthem appeared, the patient at that time being perfectly well; and, further, the highest temperatures were marked a fortnight later. The temperature never touched the normal point afterward, and six months later was still higher than the standard. He considers the condition as due to nervous disturbance, and for want of a better term would call it "hysterical." The patient was of such an extremely excitable and emotional temperament that this term is applicable. When these high temperatures were noticed he was invariably flushed and apparently excited; the hands and tongue were tremulous, and any attempt to examine the affected limb caused loud exclamations of pain, sobbing, and shedding of tears, afterward followed by just as unreasonable laughter. Twelve months after the operation anchylosis was complete, and the limb was strong and useful.

24. Mr. Keetley's case of *Charcot's joint disease* was that of a man, thirty-four years old, who up to one year before had had no other symptoms than the following: 1, slight "weakness on the legs" of twelve years' duration, attributed by the patient to the lameness occasionally produced by a corn beneath the right great toe; 2, pains in the muscles; 3, attacks of diarrhœa. One year before the "corn" ulcerated, and the corresponding great toe became swollen about a week after; the hip, groin, and thigh of the same side (right) swelled enormously, but were pale and comparatively free from pain. A deep fluctuating point being opened toward the lower part of the front of the thigh, several ounces of synovia-like fluid escaped. In two months the patient was able to stand again and move the joint freely; there was then discovered one inch and a half shortening, with a tendency to eversion, and a peculiar crepitus on manipulating the hip in a certain manner. The joint was loose. Apparently the head of the femur had disappeared. From this time, for nine months, the limb steadily increased in usefulness. Then the left one was attacked exactly as the right one had been. There was no evidence of the left hip having undergone anatomical changes like those of the right. There were other symptoms of ataxia besides those mentioned. There were no gastric crises.

25. Dr. Bradford reports three cases of *osteoclasis for bow-legs* in young children. In one of these cases the deformity was forward and outward, and the bones were fractured "about two inches above the ankle joint." No pain or swelling followed the operation. The patients were discharged seven weeks after it with straight legs, and walking without difficulty.

26. Mr. Reeves advocates the *division of the femur just below its middle for the correction of genu valgum.* He has operated in six cases, and strongly recommends this method in preference to all other sections, for the following reasons: 1. The bone is divided nearly at its smallest part; therefore, 2. The operation is more quickly done. 3. The deformity is readily corrected, and the large callus which forms when supracondyloid osteotomy is performed, and which looks very ugly, just above the joint, is avoided. 4. The effusion into the joint which sometimes follows supracondyloid osteotomy is, of course, avoided, as the section of bone is quite away from the suprapatellar pouch of the synovial membrane. 5. Recovery is quicker, as there is less bone tissue to repair. 6. Multiple osteotomies for the correction of knock-knees are done away with. He adds that 97 per cent. of his operations have been done without antiseptic precautions, and only four cases have been temporarily retarded by suppuration. [It would appear from this that Mr. Reeves has abandoned the operation of cutting off the internal condyle with a chisel.]

28. Dr. Ashhurst's case of *excision of a portion of the tibia for deformity* was that of an adult with a marked curvature of the bone due to osteitis. After trephining the bone, the author removed a V-shaped piece with a chisel. The section was made through a semilunar incision down to the bone. After section, the fibula was also divided. The two fragments of the tibia were sutured with strong wire. The wound was dressed with simple olive-oil, and, over this, oiled silk and oakum.

31. Dr. Bradford advocates a modification of Dr. Morton's appliance for *the correction of aggravated club-foot.* In Dr. Bradford's apparatus the power is applied by means of a screw similar to that of an osteoclast. The force bears on the inner side of the foot; the os calcis and astragalus are fixed by being bandaged to a plate connected with that on which the screw works, and also by means of a strap wound round the foot above the head of the astragalus, and held by an assistant. The appliance is so arranged that, besides the forcible abduction of the foot, it can be twisted and flexed. In three cases in which the method has been tried it has been found that a great amount of force can be used without injury to the skin. Fibrous adhesions are felt to give way which had been firm enough to resist the force of the hands. The foot in the corrected position should be put up in a plaster-of-Paris bandage and left. The pain for the first few hours is usually severe, but after that no trouble follows.

32. M. Ollier reports a case of *partial resection of the tarsus for double congenital equino-varus*, in which he removed the entire astragalus and cuboid, and resected the cuboid extremity of the calcaneum, in a patient nine years of age, after a trial of apparatus and tenotomy. The patient could now walk with the foot planted firmly on the ground.

QUARTERLY REPORT ON PSYCHOLOGICAL MEDICINE.*

No. IV.

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BOSTON.

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1. Dr. Weiss regards *the study of compression of the brain in relation to psychical phenomena* as of great importance, even though its entire clinical significance can not be demonstrated. The phenomena of compression have been mainly studied experimentally. The clinical aspect, as studied by Friedreich, Griesinger, and others, has been in relation with tumors, recent hæmorrhage, or hæmatoma. Other causes to be added are hyperæmia, arterial or venous, œdema of the brain, and hydrocephalus. Not all cases of increased cerebral pressure are demonstrable after death. The œdema or hyperæmia found may not be intense enough to warrant us in referring symptoms to it with certainty, and we lack any reliable measure for estimating these conditions. We can use the analogy of data derived from experiments only to a limited extent, for, on account of the limited number of psychical phenomena in animals which are operated on, the trains of symptoms will be in accord only in the highest grades of compression o the cerebrum, when its functional energy is almost entirely arrested. Still, the collation of experimental research with results of autopsies and clinical observation will be of great value. The experiments of Pagenstecher show that disturbance and extinction of psychical activity, stupor, somnolence, sopor, and coma are among the most prominent symptoms of serious cerebral compression. Other phenomena, such as convulsions, paralysis, and rotations, he is not inclined to connect with this condition, for several reasons, but he does so connect, or refer, general muscular debility, diminished sensibility and reflex excitability, and incontinence of urine. As the result of frequent post-mortem examinations, Dr. Weiss has been forced to the opinion that in conditions of stupor with more or less anxiety, such as occur, in many cases, as the terminal stage of paralytic insanity, compression of the brain, produced by serious internal hydrocephalus, is the pathologico-anatomical basis. To appreciate the relationship of these facts, this stage of paralytic insanity must be more closely examined. In many cases a profound stupor supervenes days and weeks before a fatal termination. A patient, who before was in a lively frame of mind, with ideas and projects of grandeur, or who was addicted to endless hypochondriacal complaining, suddenly becomes quiet and perfectly indifferent, stands in a corner, depressed, with an anxious expression, trembling from head to foot, can not be induced to speak, and is heedless of the calls of Nature. Generally the muscles are tense and rigid, he opposes change of position, and generally refuses food, requiring the stomach-tube. The pupils are widely dilated, and do not react; the pulse is full, strong, and slow. Surface sensibility is markedly diminished; the patient looks at the point where he has been pricked with a needle, yet he does not resent the injury nor withdraw the limb. Reflex action occurs in the foot very tardily or not at all. A fatal termination to this stage of disease occurs after a few days or weeks. Autopsies show, without exception, signs of severe compression of the brain. The convolutions were flattened, the ventricles dilated, and the basal ganglia, so far as exposed, were also flattened out. The œdema was of varying intensity. The clinical phenomena above mentioned are in entire accord with those obtained by Pagenstecher as the result of experimental compression. The correspondence extends even to the condition of the pupils and the rate of the pulse. Some of the animals operated upon *refused to eat*, and had to be fed forcibly. In cases of severe alcohol poisoning with fatal termination, the same symptoms are presented as those of a compression of the brain artificially produced; the patient's sensorium is much encroached upon—he is soporous; exhausted, motionless, with eyes closed, opening them only in response to strong irritation, and then with great difficulty. The muscles are relaxed, and, when stood upon his feet, he can hold himself erect only with great effort. The whole body trembles and quivers; the pupils are widely dilated, without reaction; the features are void of all expression; the discharges are involuntary. Sensibility and reflex action, apparently, are much diminished. The pulse is small and strong; the temperature low. Death occurs in a few hours, or in one or two days. The autopsy reveals considerable venous hyperæmia of the meninges, and very marked œdema of the brain. We are forced to the conclusion that these symptoms are to be referred exclusively to the compression of the brain resulting from the extreme œdema, for the symptoms of compression produced experimentally coincide clearly with the phenomena described, and the autopsy does not indicate any other origin. We shall be able, as a general rule, in the light of various observations, to regard that condition of psychical motor arrest termed *stupor* as depending upon increased pressure in the encephalon. The essential feature of this state is the almost entire interruption of all cerebral functions, psychical as well as sensory and motor. A complete chaos prevails, clearly shown by the diminished conduction of sensory irritations, suspension of sense of pain, and absence of voluntary motion. This constitutes the true picture of primary acute *dementia*, to be distinguished, however, from the speechless, motionless condition, perhaps with refusal of food also, which is dependent on delusion. In a case of stuporous insanity resulting from external injury, the symptoms were almost identical with those already described. It resulted in sudden death. The post-mortem examination revealed nothing abnormal but intense arterial hyperæmia and œdema of the brain. After repeated, or sometimes even after a single epileptic seizure, in man, as well as in animals experimented upon, a stage follows, varying from minutes to hours in duration, in which the individual is benumbed, almost motionless, and wholly stuporous, does not react at all, is insensible to pain, staggers about, and, in short, presents the symptoms observed by Pagenstecher in animals subjected to intense cerebral compression. The vascular spasm and anæmia which are the immediate cause of epilepsy are followed in these cases, we assume, by transient paralysis of the vessels, dilatation of the blood-ducts, and probably œdema of the brain tissue. In fact, post-mortem examinations of those dying in an epileptic seizure reveal nothing, as a rule, but hyperæmia and excessive œdema. The clinical symptoms are rendered more comprehensible by the consideration that the effect of the pressure, in these cases, is twofold; the blood-ducts are compressed as well as the brain tissue, and deficient nutrition is added to direct interference. We know that in other organs each of the two factors suffices to induce changes of a persistent and irremediable character; where we have the combined effect of both we can find nothing surprising in the gravity of the symptoms. The unfavorable prognostic significance of a protracted stuporous condition is thus more easily understood.

10. [Dr. Savage gives a vivid and interesting picture of that obnoxious form of cerebral disease, *moral insanity*. The American public has recently had opportunity of learning, through the newspapers, the views of certain well-known alienists who have disclaimed belief in the existence of such a form of disease. And yet nothing is more familiar to the student of insanity than alteration of the moral sentiments from disease. No late writer on the subject whose opinion is worth consulting has failed to recognize the existence of moral insanity as a well-established fact; while perhaps no person is capable of being intellectually complete and morally defective; yet the intellectual defect may be so slight or so unimportant that it would not of itself cause loss of self-control, and may be practically disregarded. The expert witness who denies that moral insanity exists, who, in the face of such careful and conclusive authorities as the late Dr. Ray and many others, declares that criminal acts are always criminal, that kleptomania is always stealing, and dipsomania is always drunkenness, and nothing more, is himself in danger from a certain unwholesome self-conceit that might itself be likened to moral insanity. Such obloquy has been thrown on scientific authority of late, as tending to shield the really criminal from punishment, that it requires a peculiar manliness to concentrate the mind on the truth, and give it impartial utterance, without allowing sympathy for the criminal or prejudice against him to warp the presentation. Dr. Savage opens one question which, fully discussed and decided by both the medical and the legal professions, would do much to bring those who are utterly at variance as to this form of disease into harmony. It is, whether morally insane patients should not be treated, in many instances, where crimes have been committed, in an intermediate manner, neither with the severity of the jail (or the scaffold) nor with the comparative luxury of the asylum. The recognition of a *modified responsibility*, by reason of mental disease, by the courts, and by those who frame the laws, would do much to secure an efficient administration of justice. To the obvious objection that it would be difficult to judge of the degree of responsibility in a given case, it may be replied that a court of justice does not assume to be a *perfect* instrument, but only to come as near the right as is possible; and in dealing with this condition, a modified or partial responsibility, it would not be grasping at an abstraction, but contemplating *a fact;* for no one conversant with the insane as seen in asylums would deny that many of them practice self-control, yield to and resist temptation, indulge and restrain passion. In fact, the key-note of successful moral treatment of the insane is the endeavor to inaugurate and cultivate this very pivotal function, self-control. In dealing, then, with a *fact*, there seems to be no reason why a court should not arrive at as reasonably just a result, through the testimony of those who are familiar with disease, as by setting up the wholly erroneous principle that a man must be wholly responsible, unless his mind is so completely overthrown that he has no glimmer of perception of right and wrong. The right-and-wrong test was put out of court by the most eminent justice of Massachusetts courts, many years ago, but we still hear the echo of it in the deplorable chaos of a trial which has been wearily dragging on in Washington.]

32. Dr. Weatherly desires to direct the attention of the profession to the practicability of *the treatment of insanity outside an asylum* in many cases, in the hope of the extension of the practice and consequent amelioration of their condition. He mentions that Dr. Lockhart Robinson and Dr. Crichton Browne gave the opinion before a select committee, that one third of the certified lunatics in England might be spread over the country, the other two thirds requiring asylum treatment. High authorities are quoted in favor of such practice. Dr. Bucknill considers that the curative influence of asylums and scientific treatment has been overrated, and isolated treatment in private life undervalued. Dr. Maudsley alludes to a certain class of the insane who are far happier among sane people, and under the circumstances of private life, than when surrounded by lunatics of all kinds and submitted to the routine and oppressive regulations of an asylum. His perception of his own instinctive passion for liberty excites his warm sympathy and leads him to believe that the comforts which an insane person has in his captivity are but a miserable compensation for his entire loss of freedom. Dr. Blandford, in advocating home treatment, has said: "Scores of eccentric monomaniacs, who are perfectly harmless, who only require surveillance and a limit to their supply of money, can enjoy life thoroughly amid the amusements of a town or the sports of the country, their eccentricities being greatly smoothed away by the constant society of ladies and gentlemen." Dr. Weatherly presents a rather highly-colored picture of the state of mind of an insane person, resenting the constant association with companions whose insanity he quickly recognizes, though not cognizant of his own condition; feeling deserted by his nearest and dearest friends, while under proper domestic care his life might be made fairly happy—he would be as one of a family, no longer feeling that he is constantly watched; beginning to realize, through constant association with the sane, some eccentricities in himself, and probably, if this feeling is worked upon with tact, and the disease is not too deeply rooted, a partial or actual recovery is highly probable! Dr. Weatherly thinks that it is possibly right, as is generally presumed, that only harmless chronic cases, or quiet and non-suicidal temporary ones, should be tried away from asylums, but he holds the conviction that in some cases a suicidal or homicidal tendency is to a great extent developed by the dreadful feeling of being shut up in an asylum, with, to them, no possible mode of escape, added to the feeling that they are neglected and forgotten. Holding these views, it is not surprising that he deplores extremely the attitude of the Commissioners of Lunacy, and many of the medical men engaged in the special treatment of mental diseases, who, he says, have met the question of the domestic treatment of the insane with much opposition. [The truth is that this writer, and some others, approach the question from the sentimental rather than the scientific or the practical stand-point. Certainly in this country, and it can not be far different elsewhere, the presence of a patient in an asylum is strong *prima facie* evidence that he needs treatment that can not be supplied at home, or else that he is unsafe to himself or others. The error, here, is much more common of letting persons remain at large who are known to be insane, with far too little supervision and with their harmlessness taken for granted. The newspapers are filled with tragedies, the result of this mistaken philanthropy. Persons of unsound mind are far too frequently seen wandering about with no responsible supervision, or to be met with in public conveyances. A limited proportion of acute cases can undoubtedly be well treated at home, by making a hospital of it for the time being—but it should be remembered that it is an expensive method. The attendance and appliances that in an asylum are common to many have to be furnished for one. Moreover, the repugnance above described is not always the feeling of those who are treated in asylums. Some seek restraint voluntarily, or acquiesce in it readily. There are many patients who cherish a grateful affection for their guardians in hospital, and whose associations with the place are agreeable. They have found it a refuge and a succor, when perhaps home was a place of unrest and their nearest relations were a source of irritation. As for home treatment in the sense of sending

patients into families to be taken care of for hire, the great objection, apart from expense, is the difficulty of proper and thorough supervision. If patients are sometimes subjected to unkind treatment in asylums, how would it be if they were intrusted to the care of strangers, with no physician at hand, and with occasional visits the only safeguard against oppression? It is probable that it is much easier to find suitable homes, for cases which are adapted to such a life, in England than in this country. Probably, also, the proportion of cases not needing close supervision is smaller here than abroad. Perhaps it is the custom here, to a greater extent, to refrain from sending to hospital until circumstances clearly demand it. Our asylum authorities are prone to discharge their patients as soon as it can be done with safety. Indeed, they not infrequently err in assuming that they are harmless or recovered, and send them away too soon, as is shown by speedy recommittals. At any rate, so far as American asylums are concerned, any attempt to carry out Dr. Weatherly's views with any considerable number would be fraught with danger and misfortune both to the community and to the insane. As for the opprobrious term of "*prison*" which Dr. Weatherly applies so freely to the asylum, every year makes it less applicable to our institutions, as means of enjoyment are multiplied and methods improve; but such a phrase is at the best unbecoming a professional writer, and its use can only work to the detriment of the unfortunate persons in whom he is interested.]

Miscellany.

Army Intelligence. — *Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from December 14, 1881, to January 13, 1882.*—Summers, John E., Lieutenant-Colonel and Surgeon, Medical Director, Department of the Platte. The leave of absence granted him in Paragraph 6, S. O. 123, Department of the Platte, December 1, 1881, is extended one month. S. O. 135, Military Division of the Missouri, December 28, 1881. ═══ Alexander, R. H., Major and Surgeon. The leave of absence granted him in S. O. 215, September 19, 1881, from A. G. O., is extended one month. S. O. 285, A. G. O., December 17, 1881. ═══ McClellan, Ely, Major and Surgeon. Relieved from duty at Fort McHenry, Maryland, to proceed to Fort Trumbull, Connecticut, and relieve Assistant Surgeon W. H. King. S. O. 224, Department of the East, December 15, 1881. ═══ Tremaine, W. S., Captain and Assistant Surgeon. Now awaiting orders in New York City, to report in person to the commanding general, Department of the East, for assignment to duty. S. O. 2, A. G. O., January 4, 1882. ═══ King, W. H., Captain and Assistant Surgeon. When relieved by Surgeon McClellan to repair to Fort McHenry, Maryland, and report for duty at that post. S. O. 224, C. S., Department of the East. ═══ Havard, V., Captain and Assistant Surgeon. Now en route from Fort Davis to San Antonio, Texas, assigned to temporary duty at Headquarters, Department of Texas, and to report to the Medical Director for instructions. S. O. 154, Department of Texas, December 12, 1881. ═══ Perley, H. O., Captain and Assistant Surgeon. Having reported in person at these Headquarters, will report to the commanding officer, Fort Columbus, New York Harbor, for duty as assistant to the post surgeon, and attending surgeon at these Headquarters. S. O. 224, C. S., Department of the East. ═══ Powell, J. L., First Lieutenant and Assistant Surgeon. The seven days leave of absence granted him in Orders 186, Fort Stockton, Texas, is extended fifteen days. S. O. 159, Department of Texas, December 27, 1881. ═══ Gorgas, William C., First Lieutenant and Assistant Surgeon. The leave of absence granted him by Paragraph 5, S. O. 150, Headquarters, Department of Texas, December 3, 1881, is extended one month. S. O. 1, Military Division of the Missouri, January 4, 1882. ═══ Raymond, Henry I., First Lieutenant and Assistant Surgeon. Relieved, temporarily, from duty at Alcatraz Island, California, and to report to the commanding officer of the Presidio of San Francisco, for duty at that post. S. O. 214, Military Division of the Pacific and Department of California, December 9, 1881. ═══ Carter, W. F., First Lieutenant and Assistant Surgeon. The seven days leave granted him by Orders 195, C. S., Fort Concho, Texas, extended one month, providing he furnish an acceptable substitute during his absence, without expense to the United States. S. O. 160, Department of Texas, December 29, 1881. ═══ Maddox, Thomas J. C., First Lieutenant and Assistant Surgeon. Now awaiting orders in Washington, D. C., to report in person to the commanding general, Department of Texas, for assignment to duty. S. O. 2, A. G. O., C. S.

Marine-Hospital Service.—*Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service, October 1, 1881, to December 31, 1881.*—Hebersmith, Ernest, Surgeon. Relieved from duty at San Francisco, Cal., and placed on waiting orders, November 7, 1881. Relieved from waiting orders, November 26, 1881. ═══ Vansant, John, Surgeon. Granted fourteen days leave of absence, October 18, 1881. To proceed to San Francisco, California, and assume charge of the service at that port, November 8, 1881. ═══ Miller, T. W., Surgeon. Granted leave of absence for seven days, October 6, 1881. ═══ Purviance, George, Surgeon. To proceed to Boston, Massachusetts, and assume charge of the service at that port, November 8, 1881. ═══ Austin, H. W., Surgeon. To proceed to Galveston, Indianola, Corpus Christi, and Brownsville, Texas, as inspector, October 17, 1881. ═══ Fisher, J. C., Passed Assistant Surgeon. To proceed to Yorktown, Virginia, as inspector, October 14, 1881. Detailed as member of Board for the examination of keepers and crews of the Life Saving Service, Third District, November 18, 1881. ═══ Goldsborough, C. B., Passed Assistant Surgeon. Detailed as member of Board for the examination of keepers and crews of the Life Saving Service, Fifth and Sixth Districts, November 2, 1881. ═══ O'Connor, F. J., Assistant Surgeon. Granted leave of absence for fifteen days on account of sickness, December 23, 1881. ═══ Guitéras, John, Assistant Surgeon. Granted leave of absence for ten days, December 5, 1881. ═══ Benson, J. A., Assistant Surgeon. Granted leave of absence for twenty-one days, December 7 and 21, 1881. ═══ Banks, C. E., Assistant Surgeon. To assume temporary charge of the service at San Francisco, California, until the arrival of Surgeon Vansant, November 7, 1881. ═══ Carmichael, D. A., Assistant Surgeon. To proceed to Baltimore, Maryland, for temporary duty, November 2, 1881. To rejoin his station (New York) and thence proceed to Pittsburgh, Pennsylvania, and assume charge of the service at that port, November 18, 1881. ═══ Bennett, P. H., Assistant Surgeon. To proceed to Boston, Massachusetts, for temporary duty, October 21, 1881. ═══ Peckham, C. T., Assistant Surgeon. To report for temporary duty to surgeon-in-charge, Boston, Massachusetts, October 21, 1881. To proceed to Vineyard Haven, Massachusetts, for temporary duty, November 4, 1881. To rejoin his station (Boston) and thence proceed to New York, reporting for duty to surgeon-in-charge, November 9, 1881. ═══ Ames, R. P. M., Assistant Surgeon. To proceed to St. Louis, Missouri, for temporary duty, October 21, 1881. To proceed to Evansville, Indiana, for temporary duty, December 24, 1881. ═══ Devan, S. C., Assistant Surgeon. To proceed to San Francisco, California, for temporary duty, October. 21, 1881. ═══ Urquhart, F. M., Assistant Surgeon. To report for temporary duty to surgeon-in-charge, New York, N. Y., October 21, 1881. *Appointments.*—The following candidates, having passed the examination required by the Regulations, were appointed Assistant Surgeons by the Secretary of the Treasury, October 20, 1881: Philo H. Bennett, M. D., of New York; Cyrus T. Peckham, M. D., of Massachusetts; Robert P. M. Ames, M. D., of Pennsylvania; Spencer C. Devan, M. D., of Missouri; and Francis M. Urquhart, M. D., of New York.

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Original Communications.

THE PHYSIOLOGICAL AND THERAPEUTICAL ACTION OF ERGOT.

By ETIENNE EVETZKY, M. D.

(*Concluded from January number.*)

The use of ergot in the paretic conditions of the organs composed of organic muscular tissue, in inflammatory and other morbid enlargements and growths, abnormal secretions, and the diseases of the nervous system.

The Use of Ergot in Visceral Atony.—There is a large number of diseases the essential feature of which is defective innervation of the organic muscular tissue entering into the composition of a given organ. Although in some cases this relaxed state is a secondary result of inflammatory action in the part itself, in the majority of cases we have to deal with primary atony and deficient innervation. Whatever may be the ultimate pathology in any given case, the usual practice consists in the use of various excito-motors, such as strychnine, electricity, douches, massage, etc. Considering that stimulation of the organic motor centers forms the most essential part of the physiological action of ergot, it is rather surprising that it is not used more commonly in these cases, particularly as ergot is superior to any other excito-motor.

Atony of the Stomach.—When dyspepsia is not due to the inflammatory and structural lesions of the stomach—in other words, when the patient suffers from *atonic dyspepsia*—the deficient innervation of the organ, glandular as well as motor, is accountable largely for the symptoms we are called to treat. We must bear in mind that the digestion, to be normal, depends not only upon the proper kind and quantity of the gastric secretion, but also upon the proper performance of the mechanical function of the stomach. To be well digested, the food must be thoroughly mixed with the gastric fluid, and the absorption of it depends largely upon the active and constant movement of the contents against and along the walls of the stomach. That the motor function of the organ is defective in atonic dyspepsia, and to a greater or lesser extent in many other forms of the disease, we can readily infer from the coexisting, analogous conditions of other organs, and particularly from the concomitant intestinal atony.

The second indication for the use of ergot is *dilatation of the stomach*. The good results following the systematic pumping and cleansing of the gastric cavity clearly indicate that we have here, to a large extent, a paresis, and not simply a purely mechanical condition. The dilatation of the stomach, in fact, is mainly determined by the insufficient motor innervation, and is analogous to the uterine relaxation immediately after labor, and other like conditions elsewhere.

These two indications for the use of ergot are rational and consistent with the pathology of the diseases and the physiological properties of the drug. Yet I have failed to find a single allusion to its being used in these disorders. If ergot be administered by the rectum or hypodermically, there should be no fear of disturbing the digestion.

Atony of the Intestines.—This manifests itself mainly by *constipation*. This state of the bowels can be so readily acquired by irregular habits or a sedentary life, and it occurs so often in persons in delicate and enfeebled health, that there can be no doubt as to the cause of the condition. Belladonna is very frequently prescribed in constipation, but its physiological action can only aggravate the disease, as it paralyzes the motor innervation of the intestines. Ergot meets the main lesion so well that it should be used in all such cases. Its efficacy is well spoken of by those who have used it. Meadows (*loc. cit.*) finds it invaluable in cases of constipation occurring in children and women. Curran * succeeded in overcoming the torpidity of the bowels in paralytics when the most energetic purgatives had failed to act. Its power of increasing and causing peristalsis can be readily verified by the reader—let him take a full dose of the fluid extract of ergot, and within half an hour he will notice the effects, varying from perceptible peristalsis to the actual inclination on the part of the bowels to move. Ergot should be used also in constipation following the prolonged administration of the narcotics, or succeeding peritonitis.

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* "Med. Record," 1870, p. 84.

The relaxed state of the anal sphincters and of the rectal muscular tissue determines *prolapse of the rectum.* This is another instance of atony, and if the disease has not been allowed to assume a very grave form it is within the reach of remedies. Nux vomica and its preparations act well in these cases. Schwartz[*] speaks well of its local use. Langenbeck[†] was the first to suggest the use of ergot in rectal prolapse. His method of treatment consisted in hypodermic injections of ergotin (1–2 grs.) in the vicinity of the anus every few days, the parts being reduced and held there if necessary by some mechanical appliance. The results were very gratifying, and at times immediate. Semple (*loc. cit.*) reports successful results from like treatment. Steinbach[‡] cured three cases after having given six, seven, and eight injections respectively. The fourth case was only partially benefited, and had to be operated upon. A. H. Stephens (*loc. cit.*) refers to this treatment in the highest terms. In his paper he alludes to the successful cases of Vidal and others, published in the "Lancet."

Ergot has also been found of benefit in the *paralysis of the anal sphincter* occurring after parturition.[#]

Langenbeck (*loc. cit.*) obtained good results from using it hypodermically in *invagination of the rectum.*

Planat[‖] reports two cases of *strangulated hernia* reduced readily after hypodermic injections of ergot, although they had resisted unaided mechanical efforts.

Atony of the bladder, secondary to a diseased state of the spinal cord or due to a functional disorder of its innervation, invariably yields to ergot. Sutton[^] used it in the retention of urine occurring in the course of grave constitutional diseases—for example, typhoid fever. As a rule, the relief was very speedy, showing itself at times as soon as the physiological action of the drug had had time to manifest itself. Sorbet[◊] cured a case of incontinence of urine, lasting fifteen years, in eleven days. Wernich recommends the use of ergot in all cases of incontinence of urine. Langenbeck[‡] reported to the Berlin Medical Society three cases of atony of the bladder, occurring in connection with enlarged prostate, treated by hypodermic injections of ergotin. The contractile power of the organ increased very soon, so that the patients could expel the residual urine, and at the same time the enlargement of the gland became perceptibly diminished. Israel[*] reported a case in which the patient could not retain his urine for a longer period than ten minutes, but, after a brief course of treatment with ergot, the intervals between the micturitions increased to three hours. Clemens[†] found ergot of great value in the vesical atony of paralytics. Simpson[‡] reported a case of vesical atony of long standing cured after taking forty-five grains of ergot in one day. Malfese,[#] Meadows,[‖] Spendee,[Δ] Williamsky,[◊] Roth,[‡] Duhamel, Allier, Guersant, Payan, Arnal, Ritter, Houston, Girard,[‡] and others, have all spoken favorably of the use of ergot in these disorders.

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[*] "Nashville Jour. of Med. and Surg.," 1868.

[†] "Berl. klin. Woch.," 1873, p. 622.

[#] "Bull. Gén. de Thérap.," 1880, p. 358.

[^] "Med. Record," 1879, ii, p. 48.

[‡] "Berl. klin. Woch.," 1877, p. 24.

[‡] Inaug. Diss., Berlin, 1876.

[‖] "Gaz. des Hôp.," 1878, p. 1181.

[◊] "Gaz. des Hôp.," 1869, No. 18.

Atony of the Uterus and its Ligaments.—The atonic state of the uterine muscular tissue and its ligaments presents itself under two entirely different conditions. In one case we have to deal with feeble uterine contractions or their entire absence during labor. In the other, the relaxed condition of its structure and its ligaments determines displacements and flexions of the organ.

Not very many years ago ergot was used very frequently in obstetric practice; in fact, its action on the parturient uterus was considered at that time as its most important property. But practice has taught us to use ergot in labor with extreme caution, on account of the possible danger to the child as well as to the mother. If the uterine contractions are feeble, it should be used in very small doses during the first two stages of labor, and it is much safer to recur to some of the other means at our disposal. It is not proper to administer the full dose of ergot until the child's head appears at the vulva. It is given then, at the close of labor, not so much to influence the latter as to insure firm contraction of the organ after it has relieved itself of its contents, and to guard against the possibility of hæmorrhage.

While our predecessors committed an error by using ergot too much and at the wrong time, we do the same by not using it enough and when its action might be of benefit. I refer to the use of ergot in the puerperal state. The frequent occurrence of uterine disease as the result of a previous gestation and labor is often ascribed to puerperal traumatism—lacerations, fistulæ, etc. As the former occur also when the latter are absent, we are led to the conclusion that we attach too much importance to the inhibitory influence of these accidents upon uterine involution. It has suggested itself to many that most cases of subinvolution are caused by factors within the uterus, and not without—that, if we had pursued the same policy adopted at the close of labor for a longer period, the frequency of subinvolution and subsequent uterine disease would diminish. Some advocate for this purpose electricity, while others recommend the use of ergot. Apostoli[*] is among the former. He claims that the systematic use of the faradaic current during convalescence can prevent the accidents arising from the insufficient efforts of the uterus to return to its normal condition. All this is undeniably correct, and his statement that electricity acts more promptly and energetically than ergot I am prepared to grant, as I have had some opportunities to estimate the relative merits of these two agents. On the other hand, the action of ergot is more permanent and continuous, and the combination of both will present additional advantages. Ergot has been used with this object in view by a number of physicians—Flowers,[†] Love,[‡] Sell,[#] Hildreth,[‖] and others. Kersch[^] states that this treatment will tend to lessen the frequency of puerperal inflammatory and septic diseases. Le Dirberdier[◊] and others claim that ergot can arrest *after-pains.*

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[*] "Berl. klin. Woch.," 1877.

[†] "Dtsch. Klinik," 1865, No. 27.

[‡] "Med. Press and Circular," Aug., 1868.

[#] "London Med. Record," May, 1878.

[‖] "Practitioner," Sept., 1868, p. 161.

[Δ] "Brit. Med. Jour.," 1874.

[◊] "Centralbl. f. Chir.," 1875, p. 218.

[‡] "Dtsch. Klinik," 1870, pp. 173, 201, 221, 240.

[‡] "Bull. Gén. de Thérap.," xvi, p. 359; xvii, p. 88; xxv, p. 89; xxvii, pp. 171, 288; xxviii, pp. 236, 397; xxx, p. 146; xli, p. 100.

Ergot has been used to produce *premature labor*, but this is a very crude and inferior method in comparison with the mechanical measures. That the object can be accomplished is well known. Ramsbotham[‡] reported six successful cases. If *miscarriage* is threatened by uterine congestion, the judicious use of ergot may prevent this accident.

The foregoing indications comprise the uses of ergot in obstetric practice.

The relaxed state of the uterine muscular tissue and of its ligaments determines *displacements* and *flexions* of the organ. It is when the latter are due to this cause that the treatment gives the most satisfactory results. Ergot should be combined with the local use of electricity, douches, tonics, etc. Of course it is important to keep the organ reduced by the proper pessaries while the patient undergoes the treatment.

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[*] "Ann. de Gynéc.," 1881, p. 327.

[†] "St. Louis Med. and Surg. Jour.," xxxvii, 1877, p. 98.

[‡] "Atlanta Med. and Surg. Jour.," March, 1877.

[#] "Med. Record," 1878, p. 396.

[‖] "Lancet," May 19, 1866.

[^] "Memorabilien," 1873, p. 202.

[◊] "Ann. de Gynéc.," 1876.

[‡] "Med. Times and Gaz.," 1863, p. 680.

THE USE OF ERGOT IN INFLAMMATORY AND OTHER MORBID ENLARGEMENTS AND GROWTHS.—The benefit derived from the use of ergot in these cases depends upon its action on the blood-vessels nourishing the tumor or participating in the inflammation. If organic muscular tissue enters into the composition of the part, the effects are intensified, because the entire organ contracts, and the result of this mechanical action is to hasten the degeneration, disintegration, and final absorption of the morbid elements.

We have already alluded to the use of ergot in the vascular growths. The other indications are the different hypertrophies of the organic muscular tissue, the enlargements due to congestion, hyperæmia, and inflammation; finally, the connective-tissue and other growths. The latter constitute the least promising field of all, although there are a few instances of benefit claimed to have been derived.

Hypertrophies of the Organic Muscular Tissue.—They present themselves under a great variety of structural conditions, which materially affects the results of treatment. The part may be the seat of a circumscribed growth, or the latter may assume a diffuse form, or, finally, the entire organ may share in the enlargement. These tumors are composed largely of muscular tissue; in some cases the connective tissue predominates, and occasionally the growth suffers cystic, calcareous, or fibrous degeneration. Very frequently it is impossible for us to recognize the actual state of the tumor, and, as the action of ergot is determined by the peculiarities of its structure, we should not be hasty in estimating its value by the results obtained in any given case. Sometimes the cure is very rapid and complete, or the recovery may be slow. In many cases we obtain only partial results, and, finally, the treatment may fail entirely. Uterine fibroid tumors and prostatic enlargements are the growths in which ergot has been used most frequently.

The treatment of *uterine fibroid tumors* with ergot was first suggested by Hildebrandt * in 1871. He used it not for the purpose of controlling the hæmorrhage so common in this disease, nor with the object of facilitating the enucleation of the tumors, but to induce their atrophy and absorption. In the general works on gynæcology the merits of the ergot treatment are very much under-estimated, and operative measures are recommended as the only reliable methods of dealing with these growths. Realizing as we do the structural peculiarities which may place the action of ergot in the least favorable conditions, we are prepared to meet with failures partial or complete; but it would be an error to think that such is the result in the majority of cases. In a great many instances the failures have been due not so much to the remedy itself as to the mode of using it. As an example of this I can cite the experience of Jäger, who pronounced ergot inefficient because a few hypodermic injections of ergotin failed to cause an immediate cure. Ergot should be used systematically and for a very long time, if necessary, and if the patient bears it well.

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* "Berl. klin. Woch.," June 17, 1871.

For the purpose of estimating the actual value of ergot in the treatment of uterine fibroid tumors, I have collected all the cases reported in the periodical literature within my reach. I have omitted all those in which the result was not definitely stated or in which ergot was used only as a preparatory measure to an operation. I have excluded also a large number of cases in which the tumor was expelled. According to the results of the treatment, 223 cases collected can be divided into six groups:

1. The tumor was completely absorbed (42 cases).
2. The tumor was expelled (9 cases).
3. The tumor was diminished in size and the symptoms were relieved (71 cases).
4. The tumor was not affected, but the symptoms were improved (51 cases).
5. Ergot was of no benefit at all (49 cases).
6. The patient died in consequence of the treatment (1 case).

The death was due to the interstitial injection of ergotin. We find, then, that ergot is useless in only one quarter of the cases, and, if we exclude Jäger's 17 cases, the total failures occurred in less than one sixth of the entire number (15 per cent.). In the remaining cases the disease was benefited to a greater or less extent. Radical cure was obtained in one fourth, a marked improvement was obtained in one third, and relief from the hæmorrhage in one fourth of the cases. Such results, obtained in patients that were not considered as adapted for an operation, and consequently in tumors of considerable gravity, démonstrate a very decided efficacy of the ergot treatment. The operation when it succeeds leaves nothing to be desired, but, unfortunately, such result is not an invariable one. The mortality of enucleating *per vaginam* is about ten per cent., and that of gastrotomy, with or without the removal of the entire uterus, is about thirty per cent. To estimate the mortality of the cases operated upon, I have used only the reports which have appeared during the past ten years, because the results have been much more favorable. It seems to me, then, that we operate too much, and in cases that could have been benefited by milder measures. The legitimate cases for operation are those that have resisted the more conservative methods. The ergot treatment is one of these, and it should be combined with the use of other agents having the same action. The diet treatment proposed by Dr. Salisbury has been favorably commented upon by some of our leading gynæcologists, but it has fallen into disuse. The *rationale* of the diet treatment rests upon the principle that the heterologous tissues have a lesser vitality than those which are the normal component parts of our body, and, consequently, when we deprive our system of the ordinary supply of the energy-developing food, by making the diet exclusively or largely nitrogenous, heat and energy will develop at the expense of the tissues of the body, and the tumor tissue will be one of the first to be consumed.

Electricity has also been used in the treatment of uterine fibroid tumors. Martin * treated his cases with a strong interrupted galvanic current. Four cases were cured, in four the tumor diminished in size and the symptoms improved, in one only the latter result was obtained, and in three no improvement was noticed. His cases were mostly those of large tumors involving the entire organ. Everett used the faradaic current. Three cases were cured, two by the tumor being expelled and one by its gradual atrophy; in the remaining six the tumor diminished in size, and in four of them it descended so as to make the operative removal very easy. Cheron † used the same treatment as Martin in forty cases, and, although his article does not contain details, he speaks highly of the results. I have used the faradaic current in three cases. In one the tumor, situated in the anterior wall of the uterus, was absorbed; in one the treatment gave only relief of symptoms, the tumor in this case having a cavernous structure (myoma telangiectodes, Virchow); in the third case, very soon after the beginning of the treatment, the patient died in uræmic coma, with the symptoms of septicæmia, and on post-mortem the tumor was found breaking down in the center. These three methods may be combined together, giving results superior to those obtained singly, and reducing the contingent of operative cases to the minimum. The details of the cases of the uterine fibroid tumors treated with ergot are condensed in the following table:

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* "Ann. de Gynæc.," 1879, p. 250.

† *Ibid.*, p. 65.

	No. of cases treated.	Cured.	Tumor expelled.	Tumor dimin'd, symp. relieved.	Symptoms relieved only.	No improvement.	Mode of administration of ergot.	
Hildebrandt....	27	3	..	11	9	4	Hyp.	Berl. klin. Woch., June 17, 1871; Am. Jour. of Obst., Feb., 1875, p. 529.
Herman.......	18	..	..	2	13	3	H. and Mouth.	Med. Times and Gaz., 1879, i, pp. 614, 670; ii, pp. 29, 98.
Bendelsdorff...	4	..	..	..	4	..	H.	Berl. klin. Woch., 1874, p. 21.
Munster.......	2	..	1	1	..	..	“	Dtsch. med. Woch., 1877, Nos. 14, 15.
Seydel........	1	..	..	..	1	..	‘	Dtsch. Zeitsch. f. prakt. Med., 25.
Daly..........	1	..	..	..	..	1		
Schwenriger....	1	1	..	..	..	..	H.	Berl. klin. Woch., 1876, p. 466.
Chroback......	9	1	..	2	3	3	“	Arch. f. Gynäk., vii, p. 293.
Atthill........	3	..	..	..	2	1	“	Irish Hosp. Gaz., Sept. 1, 1874.
Clay..........	1	..	..	1	..	..	“	Lancet, May 10, 1873.
Ashhurst......	1	..	..	1	..	..	“	Trans. of the Col. of Phys. of Phila., July, 1873.
Keating.......	2	..	..	1	1	..	“	
Fehling........	1	..	..	1	..	..	“	Arch. f. Gynäk., vii, p. 384.
Miller.........	1	..	..	1	1	..	M.	Boston Med. and Surg. Jour., July 29, 1875.
Leopold.......	12	..	..	4	5	3	H.	Arch. f. Gynäk., xiii, p. 182.
Reistadt.......	1	..	..	1	..	..	“	*Ibid.*, xiv, p. 494.
Stevens.	1	1	..	..	..	..	M.	Obstet. Gaz., 1879, p. 433.
Renton........	1	..	..	..	1	..	Rectum.	Practitioner, 1879, p. 31.
Bell...........	3	1	1	1	..	..	“	Lancet, 1879, i, p. 367.
Atthill.........	2	.	..	1	1	..	H.	Brit. Med. Jour., Sept. 2, 1876.
Collins........	1	..	1	..	..	..	M.	Med. Record, Jan. 20, 1875.
Winckel.......	8	..	..	5	2	1	H.	Volkmann's Samml. klin. Vortr., No. 98, p. 763.
Curry.........	2	..	..	2	..	..	R.	Med. and Surg. Report., Mar. 28, 1874.
Steele.........	3	1	..	..	..	2	H.	Chicago Med. Jour. and Ex., July, 1877
Anderson......	1	1	..	..	..	..		Amer. Jour. of Obstet., 1877, p. 470.
Williams......	2	..	..	2	..	..	H.	Brit. Med. Jour., May 18, 1878.
Byford........	2	2	..	..	..	..	M.	Trans. of the Am. Gynæc. Soc., 1876, p. 168.
Goodell........	2	1	..	1	..	..	“	*Ibid.*, i, p. 168.
Hennig........	1	1	..	..	..	..	H.	Arch. f. Gynäk., v, p. 169.
Parvin.........	3	..	..	..	3	..		Amer. Jour. of Obstet., 1876, p. 301.
Everts.........	1	..	1	..	..	..		Trans. of Minn. Med. Soc., 1879, p. 95.
Fritsch........	1	..	1	..	..	..	H.	Centralbl. f. Gynäk., 1879, p. 433.
Simpson.......	1	..	1	..	..	..	“	Edinb. Med. Jour., 1879, p. 260.
Brubecker.....	2	..	2	..	..	..	“	Phila. Med. Times, Jan. 24, 1878.
Ruge..........	1	..	..	..	..	1	“	Am. Jour. of Obstet., 1876, p. 351.
Dean..........	1	1	..	..	..	..	M.	Boston Med. and Surg. Jour., Jan. 24, 1878.
Israel.........	1	..	..	..	1	..	H.	Arch. f. klin. Chir., xx, p. 48.
Jäger..........	17	..	..	..	..	17	“	Inaug. Diss., Berlin.
Heurteux......	1	..	..	..	..	..		Centralbl. f. Gynäk., 1878, p. 485.
Simpson.......	1	..	..	1	..	..		Edinb. Med. Jour., Jan., 1878.
Swidersky.....	2	2	..	..	..	..		Przeglad Lek, 1878, No. 20.
Brunton.......	1	1	..	..	..	..	M.	Trans. Obst. Soc. of Lon., 1878, p. 282.
Cushing.......	1	1	..	..	..	..	“	Am. Jour. of Med. Sci., 1880, p. 436.
Jacobi.........	1	..	1	..	..	..	H.	*Ibid.*, 422.
Pratt..........	1	1	..	..	..	..		Pacific Med. & Surg. Jour., xxiii, p. 399
Marsh.........	1	1	..	..	..	..	M.	Med. & Surg. Report., 1880, p. 512.
Goodell........	1	1	..	..	..	..	“	Trans. of Penn. Med. Soc., xiii, p. 65.
Wieden Hospital	1	..	..	1	..	..	H.	Schmidt's Jahrbücher, clxxxvi, p. 95.
Duncan........	1	..	..	1	..	..	H. & M.	Clin. Lec. on Dis. of Wom., 1880, p. 132
Leishman......	1	..	..	..	1	..	H.	Glasgow Med. Jour., 1879, p. 464.
Ferrell........	1	..	..	1	..	..	M.	Med. & Surg. Report., 1879, xli, p. 486.
Cross.........	5	1	..	4	..	..	H. & M.	Arkansas Med. Monthly, 1880, p. 209.
Liebrecht......	4	1	..	1	..	2	R.	Jour. de Méd., de Chir. et de Pharm., lxx, p. 341.
Byford's Collec'n	58	18	..	26	3	11	H. & M.	Tr. of the Am. Med. Ass., 1875, p. 178.

Uterine hypertrophy, in the proper meaning of the term, is a very rare disease. Ergot can be tried with some hope of benefiting the patient.

Having spoken of the use of ergot in obstetric practice and in certain diseases of the uterus, to complete the subject it remains to say a few words on ergot in ordinary gynæcological therapeutics. Although every case of uterine disease presents some special feature and some one lesion more prominent than the others, it can be said in a general manner that in the great majority of cases we have to deal simply with the modifications of one and the same condition—namely, abnormal nerve and blood supply. These two factors are, as a rule, intimately associated together, and, according to the manner in which they are combined and the intensity of each, we obtain a variety of clinical conditions, differing from each other as such, but having in common the same ultimate lesions. As a result of this, the indications in the treatment of the uterine diseases are essentially the same; we try to restore the organ to its proper place and to make it resume its normal form, and we attempt to relieve the congestion, hyperæmia, and inflammation. One or more of these indications is present in nearly every case, and, as ergot has a very decided influence upon the innervation and the blood supply of the uterus, we are led to conclude that its use will be advantageous in a great variety of conditions clinically dissimilar. A number of physicians have been induced by such considerations to use it quite frequently in their practice, and the results confirm the soundness of the reasoning.*

Embryologically, the prostate gland corresponds to the uterus, and when fully developed they present many common traits in health as well as in disease. *Enlargement of the prostate* in many respects is a condition analogous to uterine fibroid tumor. The main point of interest in connection with this disease is the interference with micturition and the subsequent disorders of the bladder. Langenbeck states that ergot not only relieves the latter, but also diminishes the enlargement. Atlee † obtained similar results. Riess and Guterback ‡ were not able to confirm their experience.

The action of ergot in the *inflammatory enlargements* is due to its influence upon the morbid process itself. We have seen that it has been found useful in adenitis, orchitis, amygdalitis, mammary indurations, uterine enlargements, etc.

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* Swidersky, "Berl. klin. Woch.," 1870, p. 603; Leopold, "Arch. f. Gynäk., 1878, p. 182; Garleitschenko, "St. Petersb. med. Woch.," 1876, No. 10; Meadows, "Practitioner," 1868, p. 161; Trousseau, "Wien. med. Woch.," 1868, p. 124, etc.

† "Med. and Surg. Reporter," May 18, 1878.

‡ Virchow u. Hirsch, "Jahresb.," 1878.

Outside of the above-named cases, ergot has been used very rarely. I will simply mention that Upsher[*] cured a very obstinate case of *villous growth of the rectum* with ergot suppositories. Spitzer[†] cured a number of cases of *nasal polypi* by ordering the patients to snuff powdered ergot. *Goîtres* have been treated and cured with it.[‡] Dabney speaks of the good effect of ergot on *pterygium.* Crocket[#] states that hypodermic injections of ergot dispersed a *recurrent mammary tumor* (the tumor previously removed was of a malignant nature). We can hardly expect much benefit from this drug in this class of tumors, because their dependence upon the blood supply in general is not very great.

The action of ergot on the enlarged spleen is of a greater practical and theoretical importance. It has been used quite frequently in *splenic leucocythæmia,* but the results were not favorable. Da Costa[‖] states that he benefited two cases, but it is doubtful if they were cases of leucocythæmia. Much more certain is its action in the *malarial enlargements,* which rapidly disappear when it is given internally or hypodermically (in the usual manner or into the organ itself). The diminution in the size of the spleen is followed by improvement in the general condition of the patient.[△]

Ergot has been used in two diseases, and apparently with such good results that it deserves a mention. I refer to *malarial and typhoid fevers.* I bring up this subject here, because the action of ergot in these diseases can be explained only from the stand-point that the infection is localized in the spleen, which, in consequence of this, enlarges, and ergot, by reducing the latter, affects favorably the infected state of the system. The relation of the spleen to infection is so large a subject that I will refer the reader to the excellent papers on acute splenic enlargements by Mosler[◊] and Wardell,[‡] also to the paper of Hertz[‡] on malaria, where all that is known is fully stated. I will call his attention to a theory which is rapidly gaining favor in the profession—namely, that the spleen, by its peculiar position in the circulatory system, and by its peculiarities of structure, serves as a filter and reservoir in which the germs of poison causing the disease are detained. The latter act as an irritant, and the organ enlarges in consequence. It is a significant and well-established fact, that all measures tending to reduce this splenic swelling exert also a favorable action upon the disease itself. This statement is applicable only to malaria, but the same may prove true also with regard to other infectious diseases. "I should not like to deny that the action of quinine in malarial fever may be attributed *in part* to its influence in reducing the size of the spleen, as other remedies which act in the same way on the spleen, such as eucalyptus globulus, gentianin, strychnine, the use of cold water, etc., have a reputation as febrifuges." *

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[*] "Med. Record," 1879, p. 563.

[†] "Gaz. Méd. de Paris," 1854, p. 478.

[‡] Coghill, "Lancet," Aug. 4, 1877; Crocket, "Am. Jour. of the Med. Sci.," July 1876; Hammond, "Arch. of Clin. Surg.," Oct., 1876, etc.

[#] *Ibid.*

[‖] "Am. Jour. of the Med. Sci.," 1875, p. 117.

[△] Semple, *loc. cit.;* Miller, "Med. Record," 1876, p. 284; Hammond, "Trans. of the Am. Neurol. Assoc.," 1875, p. 142; Crocket, *loc. cit.;* Jones, "Med. and Surg. Reporter," 1876, p. 291.

[◊] Von Ziemssen's "Cyclopædia," viii, p. 450.

[‡] Reynolds's "System of Medicine," v, p. 139.

[‡] Von Ziemssen's "Cyclopædia," ii, p. 643 *et seq.*

The beneficial action of cold douches, general or local, over the region of the spleen, is well established. Some go so far as to claim that they are superior to other methods of treating the disease. This is unquestionably an exaggerated statement, but it teaches that a measure purely mechanical, and having no other property but to stimulate the spleen, can cure the disease. From this standpoint the results obtained by Schröder † with faradization of the spleen in malaria are very interesting. He treated in this manner forty-two patients suffering from recent or long-standing malarial intoxication. The result was as follows: If on the eve of the expected paroxysm the spleen was faradized, the occurrence of the attack was prevented in the majority of cases, and a course of such treatment was sufficient alone to cure the disease. In thirty-nine cases the cure was complete and permanent, in two cases the malaria returned when the treatment ceased, and in only one case no benefit was derived. The analogy between cold and electricity is an absolute one, and their favorable action can be explained only by their causing the spleen to contract and to expel into the circulating blood the poison retained in the organ, where it perishes more rapidly, as it is a less favorable medium than its former abode. It is natural, then, to expect also similar results from ergot, which acts on the enlarged spleen in a very decided manner. Deboué,‡ having observed some points of resemblance in the physiological actions of quinine and ergot, attempted to test the identity of their action by using the latter in the treatment of malarial fevers, which in the valley of Pau are very severe. He reported fourteen cures and only one failure. A. Jacobi # has used ergot in the same dis-

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* Hertz, *op. cit.*, p. 668.

† "St. Petersb. med. Woch.," 1879.

‡ "New Remedies," 1874, 1, p. 300.

"Med. Record," Oct. 1, 1870.

ease during the past twelve years, and he considers it a very active remedy, frequently curing the disease when quinine has failed to act. All these facts show clearly that the spleen stands in a very intimate relation to infection, and that the remedies acting upon it cure the disease, very likely by dislodging the poison from it and forcing the latter into a sphere less suited for its maintenance.

The facts relating to the treatment of typhoid fever with ergot sustain this view. Deboué * used it in fifteen cases, of which number seven were mild and eight severe. Two patients died, but the drug that was given them was afterward found inert. He was very much pleased with its action, but the details are not given. He states that the same treatment was adopted by Billard twenty years before him, but with what success and on what ground was not stated. Hayem's † account is more complete. He considers the antipyretic properties of ergot superior to those of digitalis and quinine, and, according to him, patients do much better on ergot than on the latter two substances. The defervescence occurs at an earlier date, and the fever runs a milder course. If ergot is given during the day, the evening temperature is lower than that of the morning. It is very desirable to have more facts with regard to the action of ergot in these diseases.

THE USE OF ERGOT IN ABNORMALITIES OF SECRETION OF THE GLANDS AND THE MUCOUS MEMBRANES.—When a gland is in a state of functional activity its blood supply is more active, and its innervation is in a state of irritation. In disease, when its activity is excessive, we have essentially the same elements to deal with, only on a larger scale. Some of the remedies which increase or suppress the secretions do so by acting on the glandular nerve centers. Such are atropine, opium, and pilocarpine. Their peculiarity is, that they produce their specific effects in health as well as in disease, and that they influence only certain glands, having no relation whatever to others. Ergot differs from them. Its action in health is imperceptible, while it has a very wide range of action in disease. These differences naturally suggest the idea that ergot acts mainly upon the circulation, and in a lesser degree if at all on the glandular innervation. Its action is particularly marked when the vaso-motor disturbance predominates, as is the case in diabetes insipidus and intestinal fluxes.

The excessive mucous or muco-purulent discharge is due to inflammation or to a relaxed state of the blood-vessels of a given

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* "Gaz. Hebdom.," Sept. 1, 1870.

† "Am. Jour. of the Med. Sci.," 1876, 1, p. 56.

mucous membrane. Ergot diminishes it by acting upon the circulation of the part.

Ergot promptly checks excessive flow of *milk*, and is capable of suppressing it entirely. It acts in this manner also on animals.[*] It should be used when the mammary gland becomes swollen and inflamed in consequence of weaning the child or from any other cause.

Christmann [†] and Ahrendt [‡] found ergot very useful in cases of excessive *perspiration*, and particularly in hectic sweat.

Diabetes insipidus, which is due to paresis of the renal vasomotor apparatus, is almost always cured with ergot.[*] It is essential to use ergot in as large doses as the patient can bear, and the treatment must not be abandoned too soon. *Diabetes mellitus* is a graver and more extensive morbid condition, but ergot is of great service here, also, although in a lesser degree.[‖]

Socquet and Chalin [^] have used ergot in *albuminuria*. Their patients were benefited. The albumen gradually disappeared from the urine, and the dropsical phenomena passed off. Perroud [◊] regards this treatment as symptomatic and not curative. We can not expect much benefit in the advanced stages of the disease, but recent cases of kidney disease present a promising field for further study.

Spermatorrhœa is a purely nervous disease; still it can be considered here, as is the customary practice. Impotence, of which spermatorrhœa is only a symptom, is characterized by an excessive irritability of the reflex centers situated in the lumbar spine, and governing the act of ejaculation. This condition is due partly to their functional over-use and partly to a congested state of the lumbar portion of the spinal cord. During the night, when the inhibitory function of the brain is suspended, any peripheral irritation in the domain of the genito-urinary apparatus may be sufficient to determine a seminal emission. The fact that it usually occurs during the early morning is due to the bladder being distended with urine, and to sleep being particularly deep at that time. When we use ergot in these cases we must not expect everything from it, and it should be combined with sedatives, tonics, and particularly with local and general electrization. Ergot will relieve the congestion of the spine and at the neck of the bladder; it will also tone up the blood-vessels of the urethral mucous membrane. It has seemed to me frequently as if ergot had the power of stimulating the sexual centers.

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[*] Le Gendre, "Jour. de Chem. Méd.," Oct., 1869, p. 475; Payet and Cammormond, "Schmidt's Jahrbücher," cxxii, p. 180; Scherebenikoff, *loc. cit.*, etc.

[†] "Centralbl. f. d. med. Wissensch.," 1869, p. 800.

[‡] "Berl. klin. Woch.," 1878, p. 539.

[*] Da Costa, "Med. News," Jan. 7, 1882, p. 5.

[‖] Shearer, "Med. and Surg. Reporter," March 16, 1872; Foster, "Brit. and For. Med. Chir. Rev.," Oct., 1872; Hasse, "Schmidt's Jahrb.," clxxv, etc.

[^] "Brit. and For. Med.-Chir. Rev.," Jan., 1864.

[◊] *Ibid.*

Prostatorrhœa is another symptom of impotence. It is due to congestion of the prostate gland, which results in a catarrhal condition of the follicles, sometimes quite severe. Ergot will relieve this symptom, as well as all other vascular disorders peculiar to this disease.

In speaking of the use of ergot in inflammations of the mucous membranes, it was stated that it benefited *leucorrhœa*,[*] *cystitis*,[†] *bronchitis*, *conjunctivitis*, *pharyngitis*, *nasal catarrh*, *gleet*, and *gonorrhœa*. In urethral inflammation Curran[‡] used injections of ergot, while Eldridge (*loc. cit.*) made use of urethral bougies. Negri[#] administered ergot internally during the chronic stages of gonorrhœa, in men as well as in women.

Hampel[‖] and Griepenkerl[^] found ergot useful in *whooping-cough*. Eulenburg[◊] states that it acts as a neurotic by diminishing the irritability of the laryngeal mucous membrane.

The use of ergot in *diarrhœa* and *dysentery* is of considerable practical importance. In diarrhœa the benefit will be in proportion to the intensity of the vaso-motor disturbance. If it is due simply to heightened peristalsis, ergot will be useless, and we should prescribe opiates after we have removed the offending cause. In purely inflammatory diarrhœa ergot will be of service, but in a lesser degree than in mere functional vaso-motor disturbances. The latter occur much more frequently than is generally admitted. The occurrence of diarrhœa is imputed, as a rule, to the existence of a catarrhal condition of the intestinal mucous membrane. That this is not the case, we infer from the fact that diarrhœa is seldom a febrile disease; constitutional symptoms hardly ever occur, and the evacuations are profuse and watery, containing a very slight percentage of albumen or none at all. The latter feature is very suggestive of a pure vaso-motor disturbance, and speaks strongly against the inflammatory nature of the disease. If we bear in mind the anatomical peculiarities of the intestinal canal, we can readily understand how a mild vascular tension can cause a very profuse diarrhœa. The veins are intimately attached to the muscular tissue, and pierce the latter at an acute angle, so that an active peristalsis, by interfering with the circulation in the veins, will lead to a rise of the arterial tension. The venous blood, before it empties into the vena cava, must first pass through the close network of the hepatic capillaries, a condition hindering a rapid establishment of the equilibrium in case of sudden determination of blood to the intestinal blood-vessels. Finally, according to recent researches, the capillaries of the intestines are particularly prone to furnish an abundant transudation of serum.[*] We can readily perceive how a profuse diarrhœa may occur from a purely functional vaso-motor disturbance; and it should be treated with ergot in connection with opiates, because the only indications present are to relieve the irritation and to quiet the circulation. In inflammatory diarrhœa the passages assume a character distinctive of a catarrhal condition; they contain mucus or muco-pus, they are less abundant and less watery, and the disease presents also a peculiar history. Ergot is of service also in this variety of the disease. The literature relating to the uses of ergot in diarrhœa is very abundant, and it is in general highly commendatory.[†]

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[*] See the literature relating to the use of ergot in gynæcological practice.

[†] See the literature relating to the use of ergot in vesical atony.

[‡] "Med. Record," 1870, p. 34. [#] Pereira, "Materia Medica," 1854, ii, p. 141.

[‖] "Allgem. wien. med. Zeitung," 1868, No. 19. [^] "Dtsch. Klinik," xv, pp. 134, 146

[◊] "Berl. klin. Woch.," 1869, p. 118.

Ergot has been used also in dysentery, and with very good results.[‡] Its mode of action is essentially the same as in diarrhœa.

THE USES OF ERGOT IN DISEASES OF THE NERVOUS SYSTEM.—In making a distinct group of these diseases, I am prompted to do so, not because ergot acts here in a manner different from what we have already seen, nor because they present lesions peculiar to themselves. The nervous system responds to the vascular disorders within it more readily than any other organs or tissues, producing a great variety of symptoms, which have been treated with ergot more frequently than others. Consequently a review of the results obtained is important, as it illustrates admirably the therapeutic value of ergot in the treatment of these morbid conditions. It remains only to extend the use of ergot to other departments of special pathology, in which the results will be as gratifying as in the domain of nervous affections.

Ergot is the standard remedy in the inflammatory diseases of the cerebro-spinal axis. The diseases of the spinal cord and its membranes, being the more common, have been treated with ergot more frequently, and the general experience is to the effect that it is a very valuable and active agent in these cases. It is urged that we must not adhere too closely to the doses laid down in the books, but push the medicine as far as the patient can bear it safely and comfortably, and it is surprising how great the tolerance may be. It is generally advisable to combine ergot with iodide of potassium, in connection with the use of electricity, counter-irritants, cold, etc.

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[*] Cohnheim and Lichtheim, "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," lxix, p. 106.

[†] Massolez, "Gaz. des Hôp.," Dec. 16, 1856; "Comptes Rendus," xliii, p. 7; Rillet, Lombard, Jonkyrat, "Wien. med. Woch.," 1865, p. 451; Gross, "Allg. wien. med. Zeitung," 1868, No. 25; Comegys, "Louisville Med. News," 1876, p. 135; Lutton, "Gaz. Hebdom.," 1872, No. 38, *et seq.*

[‡] Gross, *loc. cit.;* Barlan-Fontayral, "New Remedies," 1872, p. 246; Clark, "Med. Times and Gaz.," 1862, p. 124; Gervis, "Bull. Gén. de Thérap.," 1847, pp. 163, *et seq.*

Ergot is used even more frequently in the diseases of the cerebro-spinal axis associated with or depending upon congestion and hyperæmia. Who is not aware of the rapid relief following its use in congestive headaches, congestion of the spine, and hyperæmia of the brain and cord?

Epilepsy has been treated with ergot, alone or combined with other remedies, and the results have been good.[*]

Jacobi[†] used it in a case of *chorea* caused by a hyperæmic state of the cord, and the patient made a rapid recovery.

Various forms of *insanity* are aggravated by cerebral hyperæmia, and ergot is very beneficial in these cases.[‡]

Dedrickson[#] obtained good results in *sun-stroke* and its after-effects.

Ergot has been used with very good results in the different *vaso-motor neuroses*—hemicrania of the vaso-paralytic type,[‖] and herpes zoster (Sachse).

When a neuralgia depends upon vascular disorders of the nerve sheaths, ergot is very frequently of great benefit. Woakes[Δ] was the first to adopt the hypodermic injections, made in the vicinity of the painful spots, or in indifferent parts of the body. His good results have been confirmed by others.[◊] Still this mode of treatment is not very reliable.

Dr. Stites[‡] recently published a very interesting paper on the use of ergot with iodide of potassium in *lead poisoning.*

It lies entirely with us to multiply the uses of ergot in this class of diseases, so long as there is an evidence of a vascular disorder being the cause of the symptom we wish to relieve.

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[*] Yeats, "Med. Times and Gaz.," July 18, 1872; McLane Hamilton, "N. Y. Med. Jour.," 1875, p. 187; Baudney, "New Remedies," 1879, p. 178.

[†] "N. Y. Med. Jour.," 1865, p. 142.

[‡] Mann, "N. Y. Med. Jour.," June, 1875; Kitchen, "Am. Jour. of Insanity," July, 1878.

[#] "Am. Jour. of the Med. Sci.," Oct., 1878.

[‖] Schumacher, "Berl. klin. Woch.," 1876, p. 178; Eulenburg, *ibid.*, 1878, No. 15; "Lancet," Aug. 17, 1878; Marino, "Jour. of Ment. and Nerv. Dis.," 1879, 2, p. 157.

[Δ] "Brit. Med. Jour.," Oct. 3, 1863.

[◊] Spendee, "Brit. Med. Jour.," 1874; Marino, *loc. cit.;* Eldridge, *loc. ci'.*

[‡] "Med. and Surg. Reporter," Nov. 19, 1881.

In closing the subject it remains to call attention to the treatment of *rheumatism* with this drug. In two instances the practice originated by a mistake or by an accident; in the third the motive for using it was not stated—but in all cases its beneficial action was highly spoken of. I have had a limited experience with ergot myself, and find it very useful in a certain class of cases. In the present state of the pathology of rheumatism, it is inconceivable how ergot can affect the disease at all, and this is the reason why the recommendation of those who have used it has not been followed by others. It would be out of place to enter into a discussion of the nature of rheumatism; the subject is too large to be presented in the limited space at my disposal. It will suffice to say that none of the theories thus far proposed give us an intelligent account of the disease. The lactic-acid theory is rapidly losing its former prestige. The miasmatic theory, which is of more recent origin, is even less tenable. The humoral and infectious principles failing to satisfy the requirements of the disease, our mind naturally turns toward the nervous system. The origin, symptoms, and complications of rheumatism, the character of the agents that have an undoubted curative action, all point toward the principal lesion being in the spinal cord. We can go even so far as to assume the existence, in the acute forms of the disease, of a hyperæmic state of a certain region of the cord. From this stand-point —and I regret that I can not present it here more fully—we can readily understand how ergot may have a very decided action on the course of acute rheumatism. Gillette (père)* was the first to test the value of our drug in this disease. He was led to use it after having observed a very marked improvement in a rheumatic patient who had taken a number of doses of ergot which was given him by mistake instead of quinine. As the result of an extensive experience, he pronounces ergot a very valuable remedy. He claims that the first effect is to quiet the circulation, when the joint symptoms rapidly subside. The reports of fifteen cases confirm this claim. For the details I have to refer the reader to the original paper.

Evan M. Boddy† has also used ergot very frequently, and he regards its employment as superior to any treatment thus far used. It lowers the temperature, the duration of the disease is shortened, the liability to cardiac complications is diminished, and when they are present they are very much benefited by it.

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* "Rev. de Thérap. Med.-Chir.," 1874, p. 455.

† "Med. Press and Circ.," 1877, i, p. 298.

Chevallereau* administered a hypodermic injection of ergotin to a rheumatic patient to stop a hæmorrhage. It acted also so well on the rheumatic symptoms that he persisted in this treatment, and used it in two other cases. In all these three patients the benefit was very striking.

In all these cases ergot was used in acute articular rheumatism. My own experience has been limited to apyretic subacute rheumatism and to patients convalescing from more acute forms of the disease—consequently to cases less adapted to the ergot treatment—but its use has been followed by good results, and in proportion to the severity of the symptoms.

ON THE USE OF MERCURY AND OTHER REMEDIES IN THE TREATMENT OF SYPHILIS.†

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In the following paper I desire to present certain views which are the result of my study and experience. I do not offer them as novel or original, or as differing greatly from views held by others. Nor shall I attempt to support them by extended argument or statistical proof. They are simply my own opinions upon points of interest and practical importance, and I offer them for whatever they may be worth.

I shall commence with MERCURY, and for convenience of discussion will state my views in the form of propositions.

I. *In the Medicinal Treatment of Syphilis, Mercury is undoubtedly our most Valuable Remedy.*—The beneficial results which follow the judicious employment of this drug are such as to convince any unprejudiced observer as to its eminent virtue. As, probably, no one present will differ with me on this point, I hasten to my second proposition, which at first glance may appear somewhat inconsistent.

II. *Mercury is an Overrated Remedy.*—The fact that a remedy will do much is no indication that it will accomplish everything that may be desired of it. Mercury will lessen the manifestations and shorten the course of syphilis in most cases, but it will not always produce a speedy and beneficial effect, as many physicians have been led to believe. Some of the worst cases of syphilis which I have observed in my practice have occurred in patients to whom I gave mercury persistently for one or two years, and I must admit that in these cases I have fallen into the prevalent error of overestimating the curative action of the drug. If the profession generally were more strongly impressed with the great value of hygienic and tonic measures in the treatment of syphilis, and were less inclined to confide solely in the specific action of mercury, I am convinced that their patients would receive a far greater amount of benefit. We all know that remedial agents of little or no power often acquire a fictitious value by reason of the fact that patients improve during their administration. This *post-hoc* fallacy is rarely thought of in connection with the administration of mercury in syphilis, because we know that the drug is not inert, and have ample proof that it can and does accomplish a great deal; but it is well to bear in mind that the improvement which takes place in our syphilitic patients when treated *secundum artem* is not wholly the effect of the mercury which has been administered, but is due in great part to the existence of a natural *vis medicatrix*.

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* "France Méd.," Nov. 14, 1880; "Allg. wien. med. Zeitung," Jan. 4, 1881.

† Read before the Materia Medica Society, January 26, 1882.

III. *Mercury is not Essential to the Cure of Syphilis.*—This disease is one which, like the other exanthematous affections, tends to run its course. It may be severe, and in rare instances it terminates fatally. But in the majority of cases of the acquired form it is a far less malignant disease than it is commonly supposed to be, and, when the patient is of sound constitution and the infection is not of unusual virulence, it usually runs its course without producing any permanent damage to the health of the patient. I have treated for two or more years without mercury several patients who expressed an objection to the use of the drug, and I must say that they apparently did as well as other patients treated in the usual manner. Some will claim that these patients will be very liable to suffer from severe lesions in later years, but of this I have strong doubts. Indeed, I have seen so many hale men of advanced years who have certainly had syphilis in their younger days and received no specific treatment, that I can not believe that a cure of the disease is dependent upon the use of mercury.

IV. *The Internal Administration of Mercury is preferable to Inunction, Vapor Baths, or Hypodermic Injection.*—I am decidedly in favor of the use of mercurial ointments and lotions for the local treatment of cutaneous symptoms, but for the cure of the constitutional disease a somewhat extended trial of mercurial inunction has led me to abandon it as possessing many objectionable features and few advantages. It is but just for me to say that my experience with vapor baths and hypodermic injections has been very limited. The advantages which have been claimed for them, as also for inunction—viz., that they do not occasion irritation of the intestinal tract—are arguments in their favor to those who employ mercury internally in large doses; but they possess no advantages over the method of internal treatment which I shall presently recommend, and certainly can not claim the merit of simplicity.

V. *The Amount of Mercury usually given to Syphilitic Patients is unnecessarily large.*—From the time when the beneficial effect of mercury was estimated by the pints of saliva which dribbled from the patient's mouth, there has been a constant tendency toward a diminution in the dosage of this drug. At the present day it is considered the proper thing to give as much mercury as the patient can bear without showing symptoms of salivation, and, as nearly every writer on syphilis gives explicit directions for the treatment of salivation, it is a just inference that this undesirable effect of mercury is occasionally met with in their practice. While I admit that certain patients are far more liable to become salivated by mercury than others, and that in iritis and under certain other conditions it may be deemed advisable to "push" the remedy, I must assert my belief that in the vast majority of cases of syphilis the very best effects of mercury may be obtained by the employment of doses which will not involve the slightest danger of salivation.

There are many patients who will take a tablespoonful of a remedy when a teaspoonful has been prescribed by their physician, on the absurd principle that if a small dose does them good a larger dose will produce a corresponding amount of benefit; and there are many physicians who seem unable to disabuse their minds of the fallacious idea that within certain limits the curative effect of every drug is in direct ratio to the amount which is administered. I have no faith whatever in the administration of mercury in infinitesimal doses, but my experience has led me to the belief that a daily half-grain or grain of blue mass, or the protoiodide of mercury in divided doses, will do quite as much if not more good than the grain and a half or two grains daily which is the more common dosage.

VI. *In the Internal Use of Mercury its Local Irritant Effect should be avoided.*—This can be accomplished by a reduction of the size of the dose, and its more frequent administration if necessary, and by the employment of milk-sugar triturations. Regarding the choice between metallic mercury and its numerous salts I am not prepared to speak. My own preference is for the protoiodide, which, given in the form of a trituration and in the doses which I have commended, will rarely be found to occasion gastric or intestinal disturbance of any account. In the later stage of syphilis I have followed the custom of changing from a mercurous to a mercuric salt, from the green iodide to the red iodide, e. g., but, as the proto-salts are less irritant in their local action, I see no good reason why the green iodide should not be continued throughout the course of the disease. In my own experience I have never observed any benefit result from a combination of various salts, as recommended by Bumstead, or by a frequent change from one preparation to another.

VII. *The Duration of Mercurial Treatment should vary according to the Severity of the Case.*—When syphilis began to be described, at the close of the fifteenth century, its very worst forms were naturally observed and reported. The severest cases soon came to be regarded as a type of the disease, and in our text-books of the present day the description of syphilis rarely corresponds with the average case in practice, but is mainly a description of the severer and comparatively uncommon phases of the disease. There are cases of mild syphilis, and there are cases of severe syphilis, and, although I do not coincide with M. Diday in his opinion that mild syphilis does not demand mercurial treatment, I do protest against the common practice of treating all cases of syphilis upon a routine plan. Who would think of venturing upon the unqualified statement that scarlet fever should be treated for so many days or weeks? No one! And yet we find many writers on syphilis laying down the absolute rule that the disease must be treated during a certain specified number of months or years, without even hinting that for various reasons one patient may not require so much treatment as another.

When I say that there are cases of scarlet fever so mild as to require no treatment, the statement passes without objection; but when I hint that syphilis may occur in a mild or benignant form, I hear expressions of dissent on all sides. From the text-book rises that horrible phantom of possible syphilis, and the awe-stricken beholder exclaims, "Oh! the idea of applying the term benignant to a disease which may eat into the bones, cause paralysis, blindness, or sudden deafness, or carry away the nose of the patient!" The question is not whether the disease is always benignant, but whether it is commonly benignant. There are cases of syphilis which demand two years, three years, or perhaps five years of treatment, but it seems to me to be utterly unreasonable to fix a certain time as the duration of treatment for all cases. When the early symptoms of the disease are slight, and disappear speedily under treatment, I deem it quite unnecessary to continue the use of mercury for two or three years, with an idea of thoroughly eradicating the disease, and thus preventing subsequent manifestations. The late lesions of syphilis may and frequently do occur after a prolonged and thorough administration of mercury. I doubt if they are more likely to appear in those cases in which mercury is given merely with a view to removing the symptoms of the disease in its early stage.

My own practice is to give mercury in every case during the existence of any symptom of the disease, whether it occurs early or late. In the early period I continue the use of mercury for six months after the last symptom has yielded, and I do this partly in deference to the opinion of eminent authority and the commonly accepted teachings. I then stop the administration of the drug and await further developments. If symptoms reappear, I resort again to the use of mercury, and continue it this time for two or three months after their disappearance. In late syphilis I give mercury for the purpose of subduing any symptom which may occur, and stop its use as soon as I have accomplished this result. In so doing I believe I am practicing in accordance with the old adage, that "enough is as good as a feast."

IODIDE OF POTASSIUM.—It is a prevalent belief among authoritative writers that iodide of potassium has no actual curative effect in the treatment of syphilis, but merely the power to cause the disappearance of certain symptoms, and, furthermore, that it has little or no value in the early stages of the disease. I dislike to differ in opinion from the weight of authority, particularly when I have no convincing proof to bring to the support of my own views, but I must express my belief that iodide of potassium, though inferior to mercury, has still a curative effect upon syphilis, and that in the early stage it is an invaluable therapeutic agent in the relief of certain symptoms. Mercury in secondary, and iodide of potassium in tertiary syphilis, is the teaching and practice of many physicians. For my part, I believe that there is no stage of the disease when both remedies are not calculated to do good. In many cases of chancre characterized by a massive induration I give iodide of potassium, and apparently with the effect of reducing its size. In the stage of efflorescence I must admit that the drug has little or no effect upon the cutaneous manifestations. Still, if it be true, as has been claimed, that the administration of the drug causes an increase in the number of the blood corpuscles, it has the same claim as mercury to be ranked as a "tonic remedy." In one or two cases of extensive mucous patches, with ulceration of the lips and tongue, I have seen a rapid disappearance of the lesions follow the administration of iodide of potassium when mercury had been taken by the patient for several weeks with little or no effect. But it is in the cure of the cephalalgic and arthritic pains which are so commonly associated with the first outbreak of syphilis that iodide of potassium displays its remarkable power, and I am at a loss to know how these symptoms are alleviated by physicians who believe in withholding the drug until the advent of gummy tumors or late ulcerations.

Of the great value of the drug in late syphilis I need not speak. I will venture, however, to remind you of the fact that its power is often exerted in a most brilliant manner when its administration is preceded by a short mercurial course. I can recall cases of syphilitic orchitis in which the drug has seemed to have very little effect. Mercury has been substituted for it, and still no marked change has followed. But, upon resuming the iodide of potassium after the mercury, the swelling of the testicle has lessened with surprising rapidity. In order to ascertain the effect of either drug, I deem it advisable to give mercury and iodide of potassium separately. It is more instructive to the physician to follow this plan, although the "mixed treatment" may be equally beneficial to the patient. The iodide is best prescribed, I think, in an aqueous solution, a cubic centimetre containing a gramme, or a minim representing a grain of the drug.

Iodide of potassium is a remedy which no patient ought to be compelled to take for any length of time. It does its work quickly or not at all, and when unnecessarily continued is sure to do harm. This is especially true in those cases in which immense doses are administered. It is undoubtedly true that a five-gramme dose will sometimes accomplish a result when four grammes would produce no effect, and even larger doses may sometimes be required; but for every case of syphilis which I have seen benefited by immense doses of the iodide I have seen at least two cases in which the large doses have done harm. Several physicians have told me of cases of syphilis in which the symptoms were frightful to an extreme degree, and could only be kept in abeyance by the continued administration of immense doses. I may say here, what I thought unnecessary to say to them, that my own experience prevented my placing faith in the correctness of their representations. I can not believe that there are such cases, and I am sure that in some instances the symptoms of iodism have been mistaken for the effects of syphilis. In one or two hospitals I have seen wretched creatures dying slowly from the combined effects of syphilis and heroic doses of potash, and have often thought that, if the amount of money paid out for this drug had been expended in furnishing a decent beef-steak or a little pure country air, the chances for the patient's recovery would have been vastly increased. I do not deny the value of large doses of the iodide of potassium in certain cases, but I protest against the continuance of such doses when nothing but harm results.

IRON is a remedy which, in the treatment of syphilis, is of very great value. Though rarely mentioned by syphilographers as being specially adapted to the treatment of this disease, it deserves, in my opinion, to be ranked with mercury and iodide of potassium. I will not claim for it the antidotal or directly curative effect which is usually ascribed to mercury, nor assert that it has any marked influence upon the outward symptoms of the disease; but its power to combat the anæmia which is invariably present in the early stage of syphilis renders it a most invaluable adjunct to mercury. I usually prescribe it for patients presenting a chancre, or initial lesion of syphilis, and give it as a routine remedy during the period of efflorescence, or so-called secondary syphilis. I believe that it not only elevates the tone of the system, and thus renders it more capable of resisting the syphilitic attack, but that it also tends, in a slight degree at least, to lessen the probability of subsequent manifestations. In the weakened state of the system which is so often associated with late syphilis, the value of iron is too well known to require even a mention, but in the early stage of the disease its value appears to be unknown or unappreciated, and I can not but lament the prevalent belief that in early syphilis the whole duty of the physician is simply to give mercury. The tincture of the chloride of iron is the remedy which I usually employ, and I would recommend it, not only for its tonic effect, but for its efficacy in counteracting the slight diarrhœa which often results even from very small doses of mercury. A daily dose of ten or fifteen drops of the tincture will usually suffice to produce the latter result, and seems to me to be preferable to the common custom of combining an opiate with the mercurial.

COD-LIVER OIL is a remedy which is not unfrequently of service in the treatment of syphilis. When an individual with a decidedly strumous diathesis becomes infected with this disease, its symptoms are apt to be severe and prolonged, and their amenability to the ordinary mercurial treatment is greatly lessened. Indeed, in these scrofulo-syphilitic subjects the administration of mercury sometimes fails to produce a beneficial effect, and if pushed to any extent is liable to do harm. The use of cod-liver oil, alone or in connection with iodine, is more likely to be productive of good results in these cases. It often prepares the patient for a systematic mercurial treatment, which would not be tolerated if employed at the very outset. In late syphilis, of an ulcerative type, I have repeatedly seen mercury fail to do good at first, while after the administration of the oil for a month or more it has accomplished all that could be expected from its use. Bumstead recommended a mixture of corrosive sublimate, dissolved in ether, and cod-liver oil. For my own part, I would much prefer to give the remedies separately.

There are other remedies, of a vegetable nature, which have been and are still employed in the treatment of syphilis, and which, I have no doubt, possess positive curative power, but of their use I am not prepared to speak at the present time.

To discuss the hygienic measures which are of value in the treatment of syphilis would be going beyond the scope of my subject; but I would remind you that in many of our cases an over-indulgence in alcoholic drinks and other habits of dissipation, improper food, and lack of out-door exercise, have produced a condition of mind and body which complicates the syphilis, and for which mercury is not a specific. Teachers of medicine strive to impress upon the minds of pupils the necessity of treating the disease, and not merely its symptom. Were I able, I would impress upon the mind of every physician the duty of treating the patient, and not simply his disease. In the use of anti-syphilitic remedies I am certain that we shall achieve the best results if we do not become absorbed with the idea that we are treating a patient *with syphilis*, but bear constantly in mind the important fact that we are treating *a patient* with syphilis.

VAGINAL OVARIOTOMY.*

By W. H. BAKER, M.D., Boston,
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The cases of this operation already reported are comparatively so few that it seems advisable to put the following one upon record, at the same time comparing the operation with that by abdominal incision, as well as that by drainage of the cyst into the vagina with subsequent destruction of the cyst walls, a case of which I have published in the "Boston Medical and Surgical Journal."

Mrs. N. F. was kindly referred to me by Dr. T. G. Thomas. She was born in Poland, was twenty-five years of age, had been married six years, had had no children, but had one uncertain abortion two or three months after marriage, ever since which she had complained of more or less pain in the back and an occasional burning pain in the right groin. She could do very little work, any exertion or walking making the backache unendurable. She gave a very good family history; and her own health had usually been excellent, although she was not feeling very strong when she first consulted me, November 17, 1879. She had never been ill in bed. The catamenia appeared at the age of fifteen, and after the first year became regular. The flow lasted four or five days, its amount being equal to six thoroughly saturated napkins, with the discharge of some clots the first two or three days. Except a great increase of the backache, she suffered very little pain at that time. Much exertion caused a slight leucorrhœal discharge. Micturition had been rather frequent for a year, especially after walking. The bowels were regular. Physical examination showed the uterus pushed bodily forward toward the pubes and held there by a mass behind that organ of about the size of the fist. The uterus was normal in depth. In order to determine whether it was an outgrowth of the uterus or the ovary, a more complete examination under ether was necessary. This was accordingly made early in January, 1880, Dr. Davenport etherizing. The mass was then found to move free from the uterus, and to be connected with the left ovary or the left broad ligament. Soon after this Dr. Thorndike saw the case in consultation, and confirmed the diagnosis of cyst of the left ovary or broad ligament. As a possible means of cure, should it prove the latter, I advised aspiration of the mass, which was, however, delayed two months to allow any perceptible increase in size to determine the importance of immediate interference.

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* Read before the Boston Society for Medical Observation.

Examination on June 2d showed that the cyst had increased fully one third in size. It was accordingly aspirated *per vaginam*, without an anæsthetic, care being taken to wash out the vagina previously with a five-per-cent. solution of carbolic acid, as well as to disinfect the aspirator with the same. Six ounces of sebaceous, fatty material were withdrawn, which completely solidified on standing. On removing the needle, two hairs were found in its eyelet. The contents were evidently those of a dermoid cyst. The patient was kept quiet for two days. As the pulse and temperature were normal, and she felt perfectly well, she was then allowed to get up, with permission after another day or two to resume her work, which was to assist her husband in a small dry-goods shop, and with the injunction to summon me if any untoward symptoms appeared. On June 18th, sixteen days after aspirating, I was sent for, and found that, for a week or ten days, the patient had suffered from frequent slight chills followed by fever, although she had persisted in her work during this time. The temperature was 100°. There was no special abdominal tenderness, but examination by the vagina revealed considerable behind the uterus. The cyst was undoubtedly suppurating. Its immediate removal was advised; but two days elapsed before consent to this was given, by which time the temperature had reached 102·5°. June 20th, assisted by Drs. J. W. Elliot, F. A. Smith, and C. P. Bancroft, Dr. Thorndike being present, the patient was etherized and placed on the left side; and, the Sims's speculum being introduced, the posterior cul-de-sac was opened by seizing the vaginal membrane with a tenaculum and carefully cutting through its thickness with scissors. A fact was here noticed which nearly always surprises the operator, i. e., the thickness of the tissues before reaching the peritoneal cavity, being in this instance fully three eighths of an inch. The incision into the peritonæum was enlarged to one inch and a half in the median line backward, care being taken not to wound the rectum. There was scarcely any hæmorrhage, and the cyst, which had nearly refilled, came into view through the incision. The finger, swept around it, found it free from adhesions. It was held down close to the vaginal incision with tenacula, while its wall was cut into and its contents evacuated. These were purulent, mingled with flakes of sebaceous and fatty matter and some hairs, rather offensive, although the odor was somewhat masked by the solution of carbolic acid, a stream of which was kept up upon the vaginal wound throughout the operation. The cyst wall was drawn through the incision, the pedicle ligated, and its extremity cauterized with the thermo-cautery. During the evacuation of the cyst, some of its contents unfortunately escaped into the peritoneal cavity, which was therefore thoroughly washed out, after the return of the pedicle, with a weaker solution of the disinfectant. A soft rubber drainage tube was inserted through the vaginal incision, its proximal end being left free just within the vulvar orifice. The operation lasted an hour and a half. Nine hours after the patient had been put to bed the temperature was 103°, and the pulse 116. She had reacted well, and considerable bloody serum was discharging through the drainage tube. On the second day there was scarcely any discharge, and the pelvic cavity was frequently washed out with a weak solution of carbolic acid. There being evidences of collapse, ether and brandy were given hypodermically; and, later in the day, morphia in the same way. The evening temperature being 104·2° and the pulse 126, and the symptoms of collapse having disappeared, a wet pack was ordered, to be renewed each twenty or thirty minutes. Half an ounce of champagne was given each fifteen minutes when awake. At 6 A. M. on the third day the temperature was 102° and the pulse 118, and the patient had slept considerably during the night. The wet pack was discontinued. On account of some vomiting, all nourishment and stimulants —beef-juice and brandy—were given by the rectum. The temperature remained most of the day between 101° and 102°. On the fourth day most of the nourishment, which consisted of Kent's alcoholic extract of beef, could be taken by the mouth and retained. At intervals of three or four hours considerable foul discharge containing fatty matter was washed out through the drainage tube. There was little variation of the temperature through the day from 102°, or of the pulse from 120. On the fifth day nourishment was well retained, and the injections through the tube returned clear, though slightly offensive. Twice during the day the temperature rose to 103°, and was each time reduced by the wet pack to 101°, where it remained for several hours. On the sixth day, despite the pack, it gradually rose to 104°, and the pulse to 140. Washing out the pelvic cavity, subcutaneous injections of brandy, quinine, or ether, were ineffectual to reduce the temperature and pulse, or to increase the strength of the patient, who died at noon of that day. No autopsy was allowed.

I was greatly indebted in the care of the case to Dr. Thorndike for valuable counsel, and to Dr. Elliot for unceasing practical assistance. I attribute the unfortunate result to septic peritonitis induced by the escape of a portion of the contents of the suppurating cyst into the peritoneal cavity, and my inability at the time of the operation thoroughly to cleanse that cavity through the vaginal incision. Every attempt was made to do this by careful sponging and syringing; but that it was not accomplished was evident from the washing out of some fatty matter as late as the fourth day.

In the case of the dermoid cyst previously referred to in this paper, I drained the cyst into the vagina, stitching the edge of the incised cyst to the edge of the vaginal incision, thus shutting off completely the peritoneal cavity from contact with the contents of the cyst, and finally destroying the whole interior of the latter in its shrunken state by the most thorough application of the thermo-cautery, made through the vaginal incision, the Sims's speculum being carried directly through it into the interior of the cyst. The patient made a perfect recovery. Three years have passed since the operation, and examinations made at intervals during this period give no evidence of any reforming of the cyst.

In both cases the cysts were dermoid, and their contents therefore highly irritating, increasingly so after suppuration had begun. In both, the cysts were about equal in size and behind the uterus, pushing it forward toward the pubes, and in both were easily accessible by the vagina.

In the case where drainage without removal was depended upon, the peritoneal cavity was protected in the early part of the time by the stitches which completely surrounded the incision; and, later, when the interior of the cyst was suppurating, by the adhesions of the peritoneal surfaces in apposition, occasioned by the localized inflammatory action around the incision.

In the case where the cyst was removed, suppuration was undoubtedly excited by aspiration, and the contents of the cyst at the time of the operation were most irritating because of this suppurative action. In the attempt to evacuate into the vagina and draw the cyst walls through the vaginal incision, this irritating fluid found its way into the peritoneal cavity. That the remaining steps of the operation were successfully accomplished availed nothing. The irremediable harm had been done.

The success which now attends ovariotomy by abdominal incision renders the cases very few where removal by the vagina would be the better method, and I should limit it:

First, to cases where the cysts are small and their contents bland, so that removal can be effected without difficulty, and without great danger of septic peritonitis from the escape of any of the fluid into the peritoneal cavity.

Second, to dermoid cysts so small as to be removed through the vaginal incision without evacuation.

In the case of an ovarian cyst firmly adherent in the pelvis, I believe the best operation to be that of drainage into the vagina, with subsequent destruction by suppuration or by the cautery.

REMOVAL OF THE UTERUS IN CONNECTION WITH A MULTILOCULAR OVARIAN CYSTOMA.

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REMOVAL of the uterus is not yet so common that any information respecting it can be considered superfluous. In the presence of a disease like carcinoma or sarcoma involving this organ, most gynæcologists, at least in this country, are inclined to draw back. Not only are the magnitude and difficulties of the various operations for effecting this result successfully met by few, but the unhappy consequences in the majority of cases are a sufficient hindrance to many who can fairly be considered both skillful and humane. Not so with operative procedures upon diseased ovaries. The great prevalence of ovarian new growths, the adoption of ovariotomy in every country where modern surgery is practiced, and the glorious results attending its history, have rendered it essential that not only the specialist should be well acquainted with the phenomena accompanying it, but the general surgeon as well, who is often called upon to operate where the services of the other can not be obtained.

Absolute diagnosis is, for various reasons, impossible in ovarian growths. "Expect anything," says Dr. Thomas, "in ovariotomy"; and it is this eternal vigilance which will bridge over many of its difficulties.

To remove a *simple, free* ovarian cyst is not a difficult operation, but such tumors are not to be looked for in the majority of cases. From the record of more than fifty laparotomies performed at the Woman's Hospital during twelve working months, I find only nine done for ovarian tumors unattached to surrounding viscera. In several of *these*, other serious complications were present. The adhesions in the remaining cases were more or less firm, involving the necessary risks of hæmorrhage, septicæmia, and peritonitis. Three out of the entire number held such intimate organic relations to the uterus as to call for the removal of that viscus. In one other case the uterus was removed on account of a growth developed from it. In others the portion of sac attached to the uterus was left. These do not come under consideration in this paper.

These three cases referred to were all in the service of Dr. T. Gaillard Thomas, and it is the last of the series which forms the basis of this article. If we take these cases as the foundation for our calculation, remembering that they are from a body of nearly sixty cases, as already stated, we find that about five per cent. of the supposed ovarian tumors observed at the Woman's Hospital at the present time require uterine extirpation. Whether this proportion will remain constant for the future, it is, of course, impossible to say. It shows, nevertheless, the possibility of the complication, and that an ovariotomist should be prepared to take the bold step of removing the uterus if called for.

Mrs. E. V. W., of Cromwell, Conn., aged twenty-seven, a brunette, entered the Woman's Hospital December 28, 1881, as a patient of Dr. Thomas. She had been married eight years, but had never been pregnant. Her menstruation began at twelve years of age, and was regular and normal in every respect until four years since, when it became irregular, lasting for *weeks* in succession, not over-profuse and painless. Enlargement of the abdomen began one year since, in the right hypogastrium. This increased gradually until September, and then appeared to develop very rapidly. The general health and appetite are good, but the strength is gradually failing. There are the troubles of micturition and defecation usual in cases in which continual pressure is exerted upon the bladder and rectum. The patient is of even disposition, thoroughly anæmic, and shows some emaciation, especially about the face. She was placed at once upon the treatment customary in this institution in preparation for ovariotomy. This treatment consists of light and nutritious diet—largely of a fluid nature, mild cathartics, vaginal douches of hot water, sponge baths, and friction night and morning, followed by vaseline inunctions, tonics (preferably quinine), and hypnotics (preferably bromide of potassium and chloral). The night before the day of operation a full cathartic is given. The following morning, after breakfast, which is invariably of a fluid nature, an opening rectal enema, and at eleven ten grains of quinine with one grain of opium. No dinner is taken; half an hour before the operation the patient goes to the cottage from the pavilion, where all the final preparations are made. (All ovariotomies in this hospital are done in cottages specially built for this purpose, isolated from the pavilions. Three such are attached to the institution.) Before etherization half an ounce of brandy is given. I have given these details, as they may be interesting to those not familiar with the methods of the hospital.

The operation in this case was done on Thursday, January 5th, at 10.40 A. M. —duration, forty minutes. Present Drs. Thomas, Nicoll, Ward, Chambers, Dubois, Townshend, Currier, Mosely, Dudley, Goffe, and Coe. Dr. Thomas made a short incision, extending from the symphysis pubis upward for three inches. He then plunged in a large Wells's trocar and cannula, but the material contained in the tumor was so very thick that it would not flow. Extending the incision to the umbilicus, and catching the tumor with two large tenacula, he then cut into it for a space sufficiently large to admit his hand, and, passing this in, he forcibly turned out a large mass of colloid material, breaking up in so doing a very large number of cysts. After working in this way for twenty minutes, the tumor was turned out of the abdominal cavity, after tearing away a great many adhesions to the parietal peritonæum. The uterus was found drawn up out of the pelvis by the tumor, and so firmly adherent that separation was impossible. The operator then determined that ablation of the entire uterus was essential to a successful issue of the case. Thomas's large clamp, the branches of which are two inches in length, and which is shown in Dr. Thomas's work on "Diseases of Women," Fig. 222, page 200, was then applied as low down on the cervix as the vesical attachment would permit. After having tightened it, the operator removed it, stripped the bladder downward from its uterine attachment, reapplied it, and, after tightening it again, cut away the tumor with the attached uterus. The clamp compressed the extreme lower portion of the cervix, and the tissue above this point was cut away. The stump was seared with the actual cautery, a drainage tube was inserted, the wound was closed with silver sutures, Lister's dressings were applied, and the patient was put upon the Kibbee cot, as usual after ovariotomy in Dr. Thomas's service. Antiseptic precautions always accompany these operations in this hospital. The fluid removed weighed twenty and three quarters pounds; the sac, five and a quarter.

The patient rallied well from the operation. As she complained of pain, I gave her eight minims of Magendie's solution of morphine hypodermically. During the day brandy was freely administered by the mouth, and bits of ice were given as desired; no nourishment. At midnight the temperature was 101·40° F., pulse 130 and weak.

January 6th (*2d day*).—Last night patient slept three hours and twenty-five minutes. To-day she has slept ten hours and twenty-five minutes. Nine ounces of food were taken by the mouth, consisting of milk and lime-water, equal parts, brandy and lime-water, and concentrated beef extract. Urine passed, thirty-two ounces. Pulse, 116 to 120; temperature, 100° to 100·5°.

January 7th (*3d day*).—Sleep, ten hours; urine, twenty-seven ounces; nourishment by the mouth, eleven ounces. Vomiting and flatulence. Nutritive enemata given every six hours, consisting of beef juice, f℥jss; brandy, f℥ss; liq. opii comp., gtt. xx; quiniæ sulph., gr. v; acidi sulph. arom., gtt. v. (This formula was varied from time to time, as to amount, as occasion required.) Pulse, 112, 110, 114; temperature, 100°, 100·25°.

January 8th (*4th day*).—Slept nearly the entire day, and three hours at night. Urine, twenty-five ounces. Vomiting almost checked. Nourishment by the mouth, nine ounces; by the rectum, sixteen ounces. Pulse, 120, 116, 112; temperature, 99·75°, 100·25°, 100°.

January 9th (*5th day*).—Slept seven hours during the day, at night three hours and twenty-five minutes. Urine, thirty-one ounces. Nourishment by the mouth, four ounces; by the rectum, fourteen ounces. Ordered: bismuth. subnitrat., gr. v; cerii oxalat., gr. ijss; morphiæ sulphat., gr. $\frac{1}{12}$. This dose to be taken every three hours, for vomiting. Pulse, 108, 105, 104; temperature, 100°, 100·25°, 99·5°.

January 10th (*6th day*).—Sleep, nine hours and forty minutes. Nourishment by the mouth, five ounces; by the rectum, fourteen ounces. Vomiting less severe. Stump is beginning to slough. Pulse, 100, 104; temperature, 99·75°, 99°.

January 11th (*7th day*).—Sleep, eleven hours and forty minutes. Nourishment by the mouth, seven and a half ounces; by the rectum, ten ounces and six drachms. Wound dressed every few hours with carbolized cloths. Pulse, 102, 108; temperature, 99°, 100·5°.

January 12th (*8th day*).—Sleep and nourishment sufficient. Pulse, 100, 98; temperature, 99°, 100·5°, 99·5°.

January 13th (9th day).—Patient continues to make good progress. Pulse, 102, 94; temperature, 100°, 100·75°, 99·5°.

January 14th (10th day).—A small amount of bloody serum was removed by the drainage tube, and the cavity was syringed out. Clamp, tube, and sutures were removed. Diet varied by the addition of tamarind water, milk porridge, chicken broth, and tea. Pulse, 98, 100; temperature, 99·5°, 100·5°.

January 15th (11th day).—Bowels moved three times; no nausea or pain. Douched twice during the night. Cavity washed out every four hours. Pulse, 98, 120; temperature, 9 A. M., 100°, 3 P. M., 100·5°, 11 P. M., 103·25°.

January 16th (12th day).—Evidently some septic absorption. Complains of chilliness. Pulse, 118, 116, 114; temperature, 100·75°, 101°, 100·5°.

January 17th (13th day).—Patient is eating freely, her functions are properly performed, and the wound is suppurating healthily. Pulse, 112, 116, 108; temperature, 100·75°, 101°, 100·5°.

January 18th (14th day).—Bowels moved frequently. Patient very comfortable. Pulse, 108, 106, 104; temperature, 100·5°, 101°, 100·5°.

January 19th (15th day).—Some diarrhœa, relieved by an opium injection. Progress favorable.

January 20th (16th day).—Remainder of stump cut away. Wound kept thoroughly clean with carbolized injections and dressed with carbolized jute.

January 22d (18th day).—Patient removed to the pavilion. Convalescence from this point was rapid and uninterrupted.

February 1st.—Patient sitting up in bed. The wound is granulating healthily, all sloughy material has disappeared, and she is in excellent spirits, gaining strength daily.

The history of the case is perhaps suggestive enough without any comments, and yet it may be well to note particularly some few phenomena. Considering the serious nature of the lesions, it is quite surprising that there was no peritonitis, with its accompanying pain. The patient seldom received as much as four grains of opium in one day, and that exclusively by the bowel, with one exception. The free manner in which most of the functions were performed is quite remarkable. When the stomach gave out, as it did for several days, a large amount of food was received, as will be observed, by the bowel.

The marked rise in temperature upon the eleventh day was simultaneous with free discharges from the bowels, for the first time after the operation, and occurred within twenty-four hours after the removal of the clamp. Whether it was due to the former cause or to septic absorption from the latter I am unable to say.

During the process of sloughing there was scarcely any offensive odor, and this I consider due to the frequent carbolized injections and the carbolized-jute dressings.

NOTES ON IODOFORM IN GYNÆCOLOGICAL PRACTICE.*

By FRANK P. FOSTER, M. D.,

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During the past two years or more my experience in the use of iodoform as a local application in cases of pelvic disease in women has been considerable—mainly with a view to its sorbefacient action in cases in which, as it seemed to me, chronic extra-uterine inflammation or its sequelæ played the chief part in the production of the symptoms complained of. I find that I have notes of more than a hundred cases in which the drug was so employed; in more than half of them, however, the patients were under observation for so short a time that it would serve no good purpose to ask your attention to their cases. I must premise also that in but very few cases has the use of iodoform constituted the sole treatment; the systematic employment of vaginal injections of hot water was ordered as a part of it in the great majority of instances, and in some of them other measures also were resorted to. Of course you will allow for these facts in estimating the significance of the brief clinical notes that I shall lay before you. I would also acknowledge my indebtedness to my associate at the hospital, Dr. George D. Smith, who has kindly searched our records of cases, making such abstracts of them as it seemed desirable to incorporate in this paper.

I have nothing to say in regard to the internal administration of iodoform, and my employment of the drug for other purposes than as a sorbefacient has been quite limited. In dysmenorrhœa I have occasionally used it as a palliative, in the form of rectal suppositories, and have known such use of the drug to be followed by striking relief; but I have always found its action in that respect to be very transitory, and I think that it can not be depended upon to control the pain in successive menstruations. I have applied it also in a number of cases of pruritus vulvæ, hyperæsthesia of the vulvo-vaginal orifice, and inflammation of Bartholin's gland—in the form of an ointment (a drachm of iodoform to an ounce of vaseline, sometimes with the addition of a drachm of extract of belladonna); by insufflation of the powder (mixed with an equal amount of powdered acacia or starch); or as an ethereal solution, applied in the form of spray. In such cases I have often found it serviceable—more so, I am inclined to think, than any other single application that I have used. In true vaginismus I have never used it. I have employed it as an anodyne, in the form of a rectal suppository, in a few cases of pelvic pain in which I was unable to discover any structural abnormality, and in cases in which physical exploration seemed unadvisable. Used under such circumstances, it has seemed to me far inferior to opium, but it often answers the purpose, and is free from the objectionable properties of opium.

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* Read before the Materia Medica Society, December 29, 1881.

In one case of oöphoralgia, after having secured considerable amelioration by the use of galvanism, I resorted to iodoform applied to the upper portion of the vagina. It seemed to maintain the advantage already gained, but its use was not followed by any greater relief. I have used iodoform in one case of endotrachelitis, applied within the cervical canal. In that instance the canal was very much enlarged, and a mesh smeared with a one-to-seven ointment of iodoform was passed into it and allowed to remain for twenty-four hours. This was done twice a week for several weeks, but no benefit resulted. In another case tincture of iodine was applied to the cervical canal, and a coexisting retroversion was treated with digital replacement twice a week, followed by the application of a tampon smeared with the iodoform ointment, the iodoform being used, however, for no other purpose than as an antiseptic. The patient was cured in two months, but it is quite likely that the iodoform had little if anything to do with the result.

I have notes of three cases of hyperplasia of the cervix in which iodoform was used. In one of them the cervix was very large and there was some eversion of its lips, not dependent upon laceration. Iodoform was used alternately with ergot. At the end of four months the cervix was notably reduced in size, and the eversion was less marked. In the second case the cervix was enlarged, but not to a very great degree; there was severe granular erosion of its face, with profuse cervical leucorrhœa. There was also retroversion, easily reducible, but the patient was unable to tolerate a pessary. For a period of six months various applications were made, including that of iodoform at times, with little if any benefit, and the patient ceased her attendance. Six months afterward she applied again, and for nine months tincture of iodine was applied to the cervical canal and iodoform tampons were inserted into the vagina. Marked relief of the symptoms, including profuse and painful menstruation, was attained, but recently a relapse has taken place, and she is now again under treatment. In the third case the cervical enlargement was very decided, the face of the cervix was eroded, and there was a moderate degree of retroversion. For ten months impure carbolic acid was applied to the erosion, iodoform tampons were inserted, and a pessary was worn by day, except the two days in each week when the vagina was occupied by the tampon. A complete cure was the result.

Thus far I have mentioned only cases in which I saw no reason to suspect the presence of inflammatory action or its results in the serous and cellular structures within the pelvis. Reasoning from these few cases, and from others of which my notes are too meager to warrant my calling your attention to them, I am inclined to place considerable confidence in iodoform as a discutient in cases of cervical hyperplasia, although I am not impressed with its superiority over other measures in common use. For the relief of catarrhal affections I regard it as almost useless.

I now come to the consideration of those affections which, I am persuaded, are at the bottom of the great majority of cases of pelvic disease in women—namely, the various forms of chronic extra-uterine, non-visceral inflammation and its results. It is in these cases, that so often prove exceedingly stubborn, that, as I have already stated, I have chiefly used iodoform. I shall not attempt any nosological classification of these various forms of disease, nor shall I even distinguish peritonitis from cellulitis, but shall endeavor to recount faithfully the leading manifestations in each instance, leaving you to draw your own inferences as to the precise seat and character of the fundamental affection. Proceeding on this plan, the cases may conveniently be arranged in seven groups.

FIRST GROUP. *Cases in which inflammatory action was supposed to exist, or to have existed, but in which the uterus was freely movable without pain.*—Under this head I can mention only two cases. The *first* was one in which left lateroversion was the only abnormality detected. This was inferred to be due to contraction of the broad ligament. Iodoform was used for three months. At the end of that time it was found that lateroversion no longer existed, but had given place to a marked anteversion. The *second* case was one of perioöphoritis with retroversion. The former affection disappeared after six weeks' use of iodoform, and the retroversion, which had been treated by digital replacement, showed no disposition to return. This result was doubtless favored by the mechanical action of the tampons.

SECOND GROUP. *Cases in which the mobility of the uterus was but slightly if at all impaired, but in which motion of the organ was painful.*—In these cases the pain produced by moving the uterus was in the adjoining parts, and was not due to mere tenderness of the organ itself. Six cases fall under this head. The *first* was that of a woman in very poor general health from causes not connected with her pelvic trouble. Associated with the inflammatory affection of the adnexa she had endotrachelitis, induration and supra-vaginal elongation of the cervix, and marked anteflexion. She attended irregularly for ten months. Hot-water injections were ordered, iodoform was used, and tincture of iodine and a solution of carbolic acid were applied to the cervical canal, without any noteworthy benefit. In the *second* case there was very mild endotrachelitis, and the cervix was drawn to the left. Dysmenorrhœa was the chief symptom complained of. The patient was under treatment eleven months, iodoform being used, together with hot-water injections, faradization, and applications of tincture of iodine to the cervical canal. All the symptoms were perfectly relieved, although an anteflexion was developed during the treatment, and the uterus did not fully regain its mobility. The *third* case was one of retroversion, partially reducible. Hot-water injections were used for seven months without benefit; then, for two weeks, iodoform was used, tincture of iodine was applied to the vault of the vagina, and partial digital replacement was practiced. Complete replacement then became practicable, and a pessary gave perfect relief. At the end of three months more, however, the patient again presented herself, complaining of pain in the back, and the cervix was found enlarged and drawn to the right side. There was pain on moving the uterus, and the cervical canal furnished a glairy discharge. This second attack took place recently, and the patient is still under treatment. In the *fourth* case there was retroflexion, with pain on pressing upon the posterior vault of the vagina. Iodoform and tincture of iodine were applied to the vaginal vault for six months, and hot-water injections were used. Decided improvement ensued, but an acute attack of pelvic inflammation then supervened, from which the patient is now recovering. It seemed to be brought on by the use of a pessary. The *fifth* case was one of laceration of the cervix with eversion. The whole cervix was enlarged, and the uterus was anteflexed. For four months hot-water injections were used, also iodoform, and applications of tincture of iodine to the cervical canal. There was decided improvement. In the *sixth* case, beyond the extra-uterine trouble no lesion was detected other than a hyperæmic condition of the cervix. Iodoform and hot-water injections were used for nine months without any notable improvement.

THIRD GROUP. *Impaired mobility of the uterus, with little or no pain on moving it.*—In the single case that comes under this head, Emmet's operation for laceration of the cervix had been performed ten years before. There was enlargement of the cervix, with a moderate discharge from its canal. The patient was under treatment for six months, hot-water injections and iodoform being used, together with applications of tincture of iodine to the cervix and its canal. A cure was the result, and pregnancy soon followed.

FOURTH GROUP. *Mobility of the uterus decidedly impaired, with pain on moving it.*—This group includes thirteen cases. In the *first* case there was anteversion; nine months of treatment with hot water, iodoform, iodine, and galvanism resulted in about the amount of improvement that usually takes place without the use of iodoform. In the *second* case there was perioöphoritis. Hot water, galvanism, and iodoform were used for two months, with decided relief. In the *third* case there was enlargement of the cervix, with granular erosion. Hot water, iodoform, and iodine were used irregularly for twenty-one months, without noteworthy benefit. In the *fourth* case there was a slight unilateral laceration of the cervix, together with a gelatinous discharge from its canal. Hot water, iodoform, and iodine were used irregularly for thirteen months, resulting in cure, and the occurrence of pregnancy. The *fifth* case, in which there was a sharp anteflexion, was treated in the same way, but regularly, for two months, with marked improvement, the anteflexion, however, remaining as before. In the *sixth* case there was anteversion, with enlargement and erosion of the cervix. Hot water and iodoform were used for three months, with marked improvement; six months later a relapse occurred, and the same treatment was resumed, resulting in cure at the end of five months. In the *seventh* case there was retroversion, and the whole uterus was displaced to the left. After nine months' use of hot water, iodoform, and iodine, all the lesions had disappeared except the retroversion, which was corrected with a pessary. In the *eighth* case there was retroversion. Hot water and iodoform were used for six months, when replacement was found practicable, and a pessary was fitted. In the *ninth* case there was cervical catarrh, with slight retroversion and a backward displacement of the entire uterus. Four months' use of hot water and iodoform produced no improvement. In the *tenth* case there was marked retroversion, with severe endotrachelitis. Hot water and iodoform, with iodine to the cervical canal, produced a cure in two months. In the *eleventh* case there was bilateral laceration of the cervix with eversion, also marked retroversion. Hot water and iodoform were used for four months, producing about the degree of improvement that usually follows the use of hot water alone. In the *twelfth* case there was retroversion, with enlargement of the cervix. Two months' employment of hot water, iodoform, and iodine produced marked improvement. The *thirteenth* case was that of a woman whose health was broken down with syphilis, and who had retroversion, enlargement of the cervix, profuse cervical leucorrhœa, and marked dilatation of the cervical canal. After three months' use of hot water and iodoform, together with various applications to the cervical canal and general antisyphilitic treatment, there was no abnormality except the leucorrhœa.

FIFTH GROUP. *Uterus nearly or quite immovable, with little or no pain on attempting to move it.*—There were two cases of this sort. In the *first* there was marked retroversion. Hot water, iodoform, iodine, and galvanism were used irregularly for a year. The uterus could then be replaced with but little pain. In the *second* case there was retroflexion. After seven months' use of hot water and iodoform there was perfect mobility of the uterus.

SIXTH GROUP. *Uterus nearly or quite fixed, with decided pain on attempting to move it.*—Nine cases. In the *first* there was moderate retroversion. After two months' use of hot water and iodoform there was greater improvement than is usually produced by hot water alone. In the *second* case dysmenorrhœa was the chief symptom. There was moderate retroflexion, with marked retroversion. Two months' use of hot water and iodoform made it possible to replace the uterus partially without pain. The dysmenorrhœa was decidedly relieved, but not wholly overcome. In the *third* case, with anteflexion, the uterus became freely movable without pain after four months' use of hot water and iodoform. In the *fourth* case there was retroversion, with enlargement and induration of the whole uterus. Menstruation was profuse and painful. During the eighteen months that the patient was under treatment, with hot water, iodoform, and iodine, several acute attacks of pelvic inflammation occurred, but a cure finally resulted. In the *fifth* case there were perioöphoritis, endometritis, and stenosis of the os externum. Hot water and iodoform were used for five months. The uterus was then more movable, but could not be moved without pain. The treatment was pursued for several months longer, but with no further improvement. In the *sixth* case there was moderate anteflexion. After two months' use of hot water and iodoform the mobility of the uterus was much improved. In the *seventh* case there was pronounced anteversion. The uterus became almost completely mobile after three months' use of hot water and iodoform, the anteversion still remaining. In the *eighth* case there was endotrachelitis, with enlargement and induration of the cervix. The normal mobility was regained by six months of treatment with hot water, iodoform, and iodine. The *ninth* case was one of long standing, metrorrhagia being a prominent symptom. The patient had been under the care of several physicians, and the curette had been used with temporary benefit, although its use was followed by an acute illness. She was under observation at intervals for sixteen months, the interruptions being due to attacks of illness not connected with her pelvic trouble. Hot water and iodoform were used. The metrorrhagia was wholly overcome, and the normal mobility of the uterus was very nearly regained.

SEVENTH GROUP. *Cases of palpable inflammatory deposit.*—Five cases. In the *first* case there was thickening of the right broad ligament, the mobility of the uterus being decidedly limited, with pain on moving it; there was also anteflexion, with moderate retroversion. Hot water and iodoform were used for five weeks, with marked increase in the mobility of the uterus. In the *second* case the exudation was mostly behind and to the left of the uterus, the organ being almost fixed; there was also bilateral laceration of the cervix, with eversion. Under the use of hot water and iodoform the exudation nearly disappeared several times, but the patient had a number of acute attacks, each one followed by fresh exudation. In the *third* case there was a bulky exudation behind the uterus, crowding it forward in an attitude of retroversion. Rapid recovery followed the use of iodoform, without other treatment. In the *fourth* case there was a large exudation in front of the uterus. In the course of one month this was decidedly reduced in size, without other treatment than the use of iodoform. In the *fifth* case there was a hard deposit, as large as a fig, in front of the uterus, simulating anteflexion so closely that the physician previously in attendance introduced a stem pessary; there was some rigidity of the vaginal wall in front of the cervix and at its left side; the mobility of the uterus was impaired, but motion of the organ was not specially painful. Hot-water injections and galvanism were used for six months, together with applications of iodine to the anterior vaginal wall, without benefit; iodoform was then used, the other measures being continued, and in six weeks the exudation could scarcely be felt.

It will be seen that the most prompt and satisfactory results were obtained in the last group of cases—those of palpable pelvic exudation. Such cases, however, do better, according to my experience, under the more usual methods of treatment than those in which the exudation is not capable of detection by palpation, but is inferred to be present from conditions that can scarcely be explained on any other theory. But, while such is the case, it is quite as true that we now and then meet with bulky exudations that prove utterly rebellious to treatment. A good deal depends, no doubt, upon whether the deposit is of recent or of remote formation; and this question it is not always easy to settle in the cases of patients of whose past history we know nothing beyond what we may be able to elicit by questioning them.

Taking the seven groups together, did these patients progress more satisfactorily, on the whole, than they would have done without the use of iodoform? It may seem to you that there are not sufficient grounds to assert positively that they did. It seems to me, nevertheless, that such was the case. It will readily be understood that, in comparing one's own experience in the use of a particular therapeutical measure with his previous experience in like cases without the use of the measure in question, his impression is necessarily founded in part upon data incapable of precise expression, and not alone upon what he finds himself able to put down in black and white. Such is doubtless the case with myself in this matter; but yet, putting that consideration aside, it seems to me that these cases, occurring, as most of them did, in an out-patient service, in women whose social condition for the most part forbade their availing themselves of the indulgence that we often feel to be so desirable in the matter of physical exertion and the like, did progress more favorably than would have been the case under the same circumstances without the use of iodoform. It is true that in the great majority of them the use of vaginal injections of hot water was prescribed—a remedial measure that no one values more highly than I do; but it is no less a moral certainty that in many instances they were neglected by the patients. However, in every case in which they were ordered, I have taken it for granted, in relating the histories, that they were faithfully used. When, therefore, I state my impression that in this particular set of cases the use of iodoform was of more service than any of the other measures employed, I do not by any means wish to be understood as denying the paramount value of hot water, provided there is a reasonable certainty of its being properly used. Such certainty being assured, I should esteem the three great remedies for chronic extra-uterine pelvic inflammation in the following order: (1) hot water, (2) iodoform, (3) galvanism.

As to the best method of using iodoform in such cases, my preference is for its application to the upper part of the vagina, and my practice is to tampon the whole vaginal canal with wicking, in a manner described by me about a year and a half ago.* This prevents the application from being washed away with the discharge, and the tampon is often of great service by its mechanical action—steadying the uterus, sometimes exerting a gentle, even distension upon the deposit, and perhaps inducing muscular contraction. These tampons are almost always borne without pain or discomfort, and, from the fact that iodoform is an antiseptic, they may be retained for several days. My custom is, however, to direct their removal at the end of thirty-six hours. Not the least of their merits is that they effectually shut in the abominable odor of the drug. Used in this way, I have never known iodoform to betray the patient by its odor, although its taste is sometimes complained of immediately, showing that the substance occasionally makes its way into the uterine canal, or else is absorbed by the vagina more promptly than we are accustomed to expect in the case of medicaments introduced into that passage.

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* "N. Y. Med. Jour.," June, 1880.

I have no doubt that more decided benefit would attend the use of iodoform by the rectum, but I have never yet been able to induce a patient to continue the use of rectal suppositories of the drug for any length of time. Those with whom I have attempted it have invariably declared that the odor was unbearable. I refer, of course, to its continued use for a length of time. For occasional use, as an anodyne; in acute cases, in which the patients are not likely to be asked embarrassing questions by strangers, and in which, as well as in cases of vulvar hyperæsthesia, it is an object to avoid meddling with the genital canal; also with patients who can not have continuous treatment by the physician himself, the employment of rectal suppositories is a valuable resource.

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Editorials.

THE NEW STATE CODE.

We understand that at the recent meeting of the Medical Society of the State of New York a motion to abolish the code of ethics received a majority of the votes cast. It is to be regretted that it failed of the necessary two-thirds vote. The meeting adopted the following code. A short code is better than a long one, and this one certainly has the merit of brevity. The most striking feature of the new code—that which sanctions consultations with all legally qualified practitioners of medicine—is so decided a step in advance that we forbear to comment upon the trivialities and commonplaces that make up the bulk of the document. The following is the text:

I. The Relations of Physicians to the Public.—It is derogatory to the dignity and interests of the profession for physicians to resort to public advertisements, private cards, or handbills, inviting the attention of individuals affected with particular diseases, publicly offering advice and medicine to the poor without charge, or promising radical cures; or to publish cases or operations in the daily prints, or to suffer such publications to be made; or through the medium of reporters or interviewers, or otherwise, to permit their opinions on medical and surgical questions to appear in the newspapers; to invite laymen to be present at operations; to boast of cures and remedies; to adduce certificates of skill and success, or to perform other similar acts. It is equally derogatory to professional character and opposed to the interests of the profession for a physician to hold a patent for any surgical instrument or medicine, or to prescribe a secret nostrum, whether the invention or discovery or exclusive property of himself or of others. It is also reprehensible for physicians to give certificates attesting the efficacy of patented medical or surgical appliances, or of patented, copyrighted, or secret medicines, or of proprietary drugs, medicines, wines, mineral waters, health resorts, etc.

II. Rules governing Consultations.—Members of the Medical Society of the State of New York, and of the medical societies in affiliation therewith, may meet in consultation legally qualified practitioners of medicine. Emergencies may occur in which all restrictions should, in the judgment of the practitioner, yield to the demands of humanity. To promote the interests of the medical profession and of the sick, the following rules should be observed in conducting consultations: The examination of the patient by the consulting physician should be made in the presence of the attending physician, and during such examination no discussion should take place, nor any remarks as to diagnosis or treatment be made. When the examination is completed, the physicians should retire to a room by themselves, and, after a statement by the attending physician of the history of the case and of his views of its diagnosis and treatment, each of the consulting physicians, beginning with the youngest, should deliver his opinion. If they arrive at an agreement, it will be the duty of the attending physician to announce the result to the patient, or to some responsible member of the family, and to carry out the plan of treatment agreed upon. If in the consultation there is found to be an essential difference of opinion as to diagnosis or treatment, the case should be presented to the patient, or some responsible member of the family, as plainly and intelligently as possible, to make such choice or pursue such course as may be thought best. In case of acute, dangerous, or obscure illness, the consulting physician should continue his visits at such intervals as may be deemed necessary by the patient or his friends, by him, or by the attending physician. The utmost punctuality should be observed in the visits of physicians when they are to hold consultations, but, as professional engagements may interfere or delay one of the parties, the physician who first arrives should wait for his associate a reasonable period, after which the consultation should be considered as postponed to a new appointment. If it be the attending physician who is present, he will, of course, see the patient and prescribe; but, if it be the consulting physician, he should retire, except in an emergency, or when he has been called from a considerable distance, in which latter case he may examine the patient, and give his opinion in writing, and under seal, to be delivered to his associate.

III. THE RELATIONS OF PHYSICIANS TO EACH OTHER.—All practitioners of medicine, their wives, and their children while under paternal care, are entitled to the gratuitous services of any one or more of the faculty residing near them, whose assistance may be desired. Gratuitous attendance can not, however, be expected from physicians called from a distance, nor need it be deemed obligatory when opposed by both the circumstances and the preferences of the patient. The affairs of life, the pursuit of health, and the various accidents and contingencies to which a medical man is peculiarly exposed, may require him temporarily to withdraw from his duties to his patients, and to request some of his professional brethren to officiate for him. Compliance with this request is an act of courtesy, which should always be performed with the utmost consideration for the interests and character of the family physician, and, when exercised for a short period, all the pecuniary obligations for such service should be awarded to him. But, if a member of the profession neglect his business in quest of pleasure and amusement, he can not be considered as entitled to the advantages of the frequent and long-continued exercise of this fraternal courtesy without awarding to the physician who officiates the fees arising from the discharge of his professional duties. In obstetrical and important surgical cases, which give rise to unusual fatigue, anxiety, and responsibility, it is just that the fees accruing therefrom should be awarded to the physician who officiates. Diversity of opinion and opposition of interest may, in the medical as in other professions, occasion controversy and even contention. Whenever such cases unfortunately occur, and can not be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians, before appealing to a medica society or the law, for settlement. If medical controversies are brought before the public in newspapers or pamphlets, by contending medical writers, and give rise to, or contain assertions or insinuations injurious to the personal character or professional qualifications of the parties, the effect is to lower in the estimation of the public not only the parties directly involved, but also the medical profession as a whole. Such publications should therefore be brought to the notice of the county societies having jurisdiction, and discipline inflicted as the case may seem to require.

THE MEDICO-LEGAL SOCIETY.

THIS society has been in existence for several years, but much of its work has been mediocre, to put it mildly, and hence it has not hitherto attained to a very high place in the esteem of either of the two professions from which it draws its membership. There is reason to believe, however, that this state of things will speedily cease to be. Owing chiefly, as we understand, to the devotion of Mr. Clark Bell, who has recently become its President, the scope of its work is being enlarged in a number of directions, and under such favorable auspices that men of a high class in each profession are attracted to it, and will doubtless aid materially in bringing it up to the status that such an organization ought to hold.

The formation of a comprehensive library of forensic medicine —a scheme that formed one of the means by which, during Mr. Bell's former presidency, the society sought to further the purpose of its existence, but that has languished of late years—is, we are informed, to be prosecuted vigorously. There seems to be a peculiar need of such a library, for, beyond a few text-books and a flood of controversial pamphlets, emanating from parties to malpractice suits, the literature of medical jurisprudence is almost beyond the reach of the great mass of the profession in this country. Beyond and above this undertaking, the society proposes to make a determined effort to secure such an *appréciation* and classification of experts in the various branches of medical science as will enable it to place at the disposal of the courts witnesses whose standing can not be questioned, and who shall be placed altogether above suspicion by the fact that they are called, not by either party in the case, but by the court, in the simple interest of justice. The consummation of this purpose may require legislation. We trust that, in that event, the co-operation of the best men in the professions of law and medicine will, when legislative action comes to be asked for, be found to have already so raised the society in general esteem that it can go before the legislature with a certain authority and prestige. There is no question that these aims can be carried out, if only the medical profession will contribute an amount of thought and work commensurate with that which, we have reason to believe, our friends of the bar stand ready to furnish. By such work they have little to gain, but we can accomplish a reversal of the feeling of contempt that the community holds for the ordinary medical witness.

Special Articles.

THE PHYSIOLOGY OF ACCOMMODATION.*

By WILLIAM O. AYRES, M. D.

The mechanism of accommodation has probably furnished a greater field for dispute than any other part of the whole science of physiological optics. Therefore, before making the points I have to present in this article, I will take the liberty of giving a short compilation of the various theories which have been advanced in the past. I do this because I consider it extremely interesting to watch the various hypotheses which the ingenuity of authors has invented and upheld, while they were absolutely ignorant of any of the fundamental facts which we are acquainted with to-day—facts, indeed, which we have had given to us only within the last few years.

History.† —While the older authors were perfectly aware that, with a certain given refractive system, object and image must hold the positions of conjugate foci so long as the system was made of glass or of some such substance, nevertheless some of them believed that a *live lens* like that in the eye had the power of forming pictures derived from objects at different distances at one and the same plane. In this way they thought that, when a lens possessed that inexplicable property—*life*—by virtue of this property it was capable of doing all the work which the same force, life, required of it. In other words, so long as the lens was a live one, it could place the picture of an object where it was required, no matter where the object was situated.

Magendie thought that he could demonstrate this property by certain experiments on the white rabbit; since the choroidal pigment is wanting in that animal's eyes, we can see a tolerably distinct picture on the posterior wall of the eye, through the sclera. But it is by no means sufficiently distinct to observe so slight a change as will suffice for the working of the eye, or as must be corrected by the accommodation of the system, especially if the eye be hyperopic. Ritter, Haldat, and Adda agree with Magendie. After more careful examinations, however, it was maintained by Hueck, Volkmann, Gerling, Mayer, and Kramer, that animal and human eyes also projected images of objects at different distances in different places—that is, that it was not true that the combined dioptric system always placed its images in the fixed plane of the retina.

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* Magendie.—"Précis Élémentaire de Physiologie," t. i, p. 73.
Kramer.—"Het Accommodativevermogen," Haarlem, p. 9.
Sturm.—"Dissertatio Visionem ex Obscuræ Cameræ," etc., p. 172.
De La Hire.—"Jour. des Sçavans," 1685, p. 398.
Scheiner.—"Oculus," p. 31.
Lobé.—"Dissertatio de Oculo Humano," p. 119.
Young.—"Philos. Trans.," 1795, p. 18.
Helmholtz.—"Die physiol. Optik."
Kepler.—"Dioptrice," Propos. 26.
Descartes.—"Dioptrice," 1637.
Langenbeck.—"Klinische Beiträge," 1849.
Iwanoff.—"Arch. of Ophth.," xv, 3, p. 297.
Loring.—"Report of the Fifth Internat. Ophth. Congress," p. 245.

† Portions of the history of accommodation I have translated from Helmholtz.

Treviranus offered a theoretical explanation of why the position of the image was independent of the distance of the object. He considered that the refractive power of the lens increased according to a certain law, and published a mathematical demonstration of his theory.

Sturm sought to explain the power of accommodation in a very ingenious and peculiar manner. He examined the course of a bundle of homocentric rays of light, as refracted by a surface which was not one of rotation (that is, not regular), and found that they were not brought to one focus, but, on the contrary, that there were two distinct focal planes. In one of these planes the rays were brought to a linear focus, and in the other in a line perpendicular to the first linear focus. Between these two lines there were no foci, but sections of the refracted bundle between the two focal lines gave circles or ellipses, according to their position. In the case of the eye, he considered that these sections were small enough to give images sufficiently distinct for clear vision. He considered that, as the object neared the eye, both of these focal planes went backward, but that, so long as the retina remained between them, the image would remain sufficiently clear for distinct vision. The condition which he describes does really exist in the eye, although it has nothing to do with accommodation, but rather with refraction. It is characteristic of astigmatism, and, instead of being an advantage to the eye, allowing it the power of accommodation, it is decidedly the result of a faulty structure.

De La Hire considered that there could be only one distance at which the eye could see distinctly, but that at a greater or less distance from this point the image was still sufficiently distinct for ordinary vision. Besides this, he insisted that there was no such thing as accommodation. Haller agreed with him in most particulars, but suggested that the narrowing of the pupil aided to a great extent, and caused the dispersion circles made by near objects to become much smaller. Besio, a more recent author, fell into the same error. All theories which deny the existence of such a power as accommodation are done away with when we remember that, if one object remains stationary, we can see it distinctly or indistinctly at will (Helmholtz)—also by the use of the ophthalmoscope; since, when we look into the eye, we can see the retina distinctly or indistinctly, at pleasure, by using our own accommodation. There are many authors who have believed that the pupil was the means of accommodation (by dilating, closing, etc.). The fact that the pupil becomes narrower when we inspect objects near at hand was first observed by Scheiner. This theory of accommodation can also be exploded by simply looking through a small hole in a card, smaller than the pupil, so that the hole in the iris has nothing to do with the size of the beam of light entering the eye through the hole in the card. We can see distant and near objects in this way with the same distinctness; therefore the iris has nothing to do with accommodation. Again, it sometimes happens that people have no iris in the eye, but can still accommodate their vision.

Next to these theories came one from Lobé, that in accommodation the curvature of the cornea changed. Some thought that in vision for close objects its curvature increased—others that it decreased. However strange such a theory may seem to-day, at that time it was very important, since it began to be appreciated that some one of the refractive media must change in the act of accommodation. It was a most important step in advance, even if totally wrong. The way they determined that the corneal curvature changed was by fixing the head of the person to be examined, then placing a plate with a hole in it close to the eye, and examining the position of the cornea in near and far vision with a microscope and micrometer-screw. They really noticed that the apex of the cornea moved, but this was most probably due to the fact that persons involuntarily moved their heads forward as they accommodated vision. The amount of motion observed was $\frac{1}{800}$ of an English inch. Thomas Young measured the reflex images from the cornea (a method far more exact), and found that they remained stationary, and consequently that the cornea did not move (since the size and position of images reflected from a convex mirror are dependent upon its radius of curvature). Young also pointed out the fact that accommodation was possible when the eye was opened under water, a fact which is also fatal to the cornea-movement theory. The measurement of the radius of curvature of the cornea is easily done with the ophthalmometer constructed by Helmholtz, and it is thereby shown that the cornea does not move during accommodation of vision.

Since the cornea was found to remain stationary, and as it was also probable that the retina remained *in loco*, theorists were driven to the lens; and many authors then maintained that a change in the location of the lens must occur, as there was nothing else left to produce accommodation.

Kepler was the first to express such a belief, and he always had many followers. However, most of these believed that the ciliary body could be brought forward or pushed backward at will, thereby changing the position of the lens, and consequently the focal plane of the combined system. It was also observed that in accommodation for near objects the plane of the iris came closer to the posterior surface of the cornea. C. Weber showed that, when the anterior part of the eye was excited by electricity, the anterior surface of the lens bulged forward. For this experiment, he gave opium to a dog, cut a round hole in his cornea, and inserted a small rod until its end rested on the anterior surface of the lens. He then passed the current, and the rod was pushed slightly forward, showing that the lens must have come forward, or at least that its anterior surface came nearer to the cornea. Hanover thought that the lens was capable of being moved inside of its capsule, and based his opinion upon the existence of the so-called liquor Morgagnii. This liquid does not exist in the normal lens. It is most positively a post-mortem or pathological product.

Next came the opinion that there must be a change in the form of the lens, and, indeed, this is the view of to-day. It was a theory held years ago by many, but only as a theory, since they were not able to demonstrate either that it was correct or that it was incorrect.

The first to express such an opinion was Descartes, and after him Pemberton, Camper, Hunter, Thomas Young, Purkinje, von Graefe, Thomas Smith, Hueck, Stellwag von Carion, Forbes, and others. The elder anatomists (Leeuwenhoek, Pemberton, and others), on this account, called the lens *musculus crystallinus*, as they believed that its individual fibers possessed the power of contractility.

The first to observe the change of position of images reflected from the anterior surface of the lens in accommodation was Max Langenbeck, who immediately came to the conclusion that the anterior surface bulged for ward when near vision was required. His method of experimenting was faulty, from the fact that he made the person observed look directly at the light, and thereby the size and brightness of the corneal pictures rendered it difficult to observe those from the lens. Kramer improved this method by causing the rays of light to come from the side, and observing the images from the other side of the eye. He constructed an instrument for this purpose, which he called an ophthalmoscope, by the aid of which the examination was more easily made, and much more exact. Helmholtz made the same discovery at about the same time, and published not only that the reflex images from the anterior surface moved, but also that those from the posterior surface remained comparatively stationary.

It was urged against this conception of accommodation that it could not be correct, since a person who had undergone a cataract operation, and consequently had no lens, could read and see larger objects at a distance with the same glass. Some authors even went so far as to think that on this account there must be a more or less complete regeneration of the lens. Such an opinion should have no weight, since any one can easily accommodate for, say his finger, at one foot, and at the same time see larger objects in the distance without changing his accommodation. If a person with cataract glasses could look at an object and see alternately distinctly and indistinctly, that alone might show that he had a power of accommodation; but this can never be the case. Therefore, to-day, we always give two glasses to a person who has undergone a cataract operation—one for reading, and a weaker one for distance. That a change in the form of the lens is the true cause of the power of accommodation is not questioned at the present time.

As a matter of curiosity, there was still another, and indeed a large, class of observers who believed that the shape of the eye was changed during near vision. It can easily be seen that, if during near vision the retina could be placed farther back, it might receive a properly focussed image, in the same way as a photographer places his screen when the object is near. The supporters of this theory believed that the recti muscles, or those which move the eyeball, or even those in conjunction with the muscles of the lids, had the power of changing the shape of the globe by pressing upon it simultaneously. Such authors include Sturm, Le Moine, Buffon, Boerhaave, Molinetti, Olbers, Haeseler, Walther, Morno, Himly, Meckel, Parrot, Poppe, Schroeder van der Kolk, Arnold, Serre, Bonnet, Henle, Szokalsky, Listing, and others.

Clavel thought that these muscles not only had the power of changing the form of the eyeball, but could also make the cornea bulge, and cause the lens to approach the anterior part of the eye. But all of this is not credited to-day, and for sufficient reasons.

Grimm even thought that the indices of refraction of the different media could be changed, thereby accomplishing accommodation; and Waller insisted that the whole thing was a psychological phenomenon.

We therefore see what an enormous *rôle* the subject has played in the science of past years, and by what roundabout ways we have been brought to our present knowledge of it. Had the older authors at first appreciated that the ciliary body was a muscle, they might possibly have considered its function that of changing the position of the retina, but they would not have been long in coming to the conclusion that its office was to change the shape of the lens. This was, however, reserved for Brücke and H. Müller, and we may say that only since their studies have we had a definite knowledge of the act and power of accommodation.

Since the only opinion held to-day is that the act is produced by a change in the shape of the lens, and that this change is brought about by the muscle fibers of the ciliary body, I will confine the few remarks I have to make on the physiology of accommodation to the structure and consequent action of the ciliary muscle.

All other ideas than that the power of accommodation is dependent upon contractions of the ciliary body have passed away. While we find occasional articles from men of some prominence trying to argue otherwise, we may pass such views by without comment, especially since we find that all authorities on the subject agree that there must be an active muscular effort, and, further, that this effort can only come from the ciliary muscle. There was a period when every one was prone to look upon living objects as possessing some inexplicable property by virtue of life, which gave them an advantage over inanimate substances; but this, too, is a thing of the past. The more science advances the more we try to seek explanations of facts in accordance with general physical laws. Accommodation is one of these facts, and we now look upon the human lens as possessing no power beyond what any inanimate structure would acquire were it built after the same plan.

It is almost superfluous to give the method of accommodation of the eye, since the subject (being so interesting in itself) is certainly one which has been studied by all students of physiology; but, since what follows in this article would begin somewhat abruptly without it, I add it, and at the same time apologize for so doing.

We know that the human lens is biconvex, and composed of layers which run more or less parallel to its outer surface. Its anterior surface is much more curved than its posterior, the former having an average radius of curvature of 6 mm., while the latter has one of 10 mm. The lens body is of course transparent, and is inclosed within a hyaline capsule, or bag, which encircles it in its whole circumference. The epithelium of the anterior capsule does not interest us in this connection. It is suspended in the eye in such a manner that the optical axis passes almost, if not quite, through its center, and it is kept in position by what is known as its suspensory ligament (ligamentum suspensorium). This ligament is firmly attached to the outer surface of the capsule by one end, and to the ciliary processes and choroid by the other. Its office is a very simple one. When the ciliary muscle contracts it pulls the choroid forward (as demonstrated by the experiment of Hensen and Volkers); the ciliary attachment of the ligament is brought forward, and the lens, being elastic, bulges at its anterior surface, simply by virtue of its own elasticity. When this bulging takes place, the lens, and therefore the eye, is accommodated for near vision, since it becomes stronger or refracts light more strongly. By this mechanism the ciliary body is always able to keep the picture of objects at varying distances on the retina, when the object lies within the range of accommodation of the eye concerned, or when the object comes between its far point and its near point.

The only special point which may sometimes be of difficulty in studying accommodation for the first time is that, when the muscle contracts, the lens bulges. If we properly understand the position of the muscle we shall see at a glance that things could not be otherwise. Having written what I consider necessary for the introduction of what follows, I would direct attention to the

MYODYNAMICS OF THE CILIARY BODY.—In making microscopic sections through the anterior parts of the eye day after day, and examining them with the microscope, we unconsciously fall into the habit of *thinking the diagnosis* emmetropia, hypermetropia, or myopia, as the case may be, and passing on without asking ourselves why it is that the volume of the ciliary muscle should bear a definite relation to the length of the optical axis. It does have such a relation, and we will try and discuss why it should.

It has been known since the researches of Brücke and Müller that there are two sets of muscle fibers in the ciliary body—the one called by its discoverer (Brücke) the tensor choroideæ, the other, discovered by Müller, having a sphincter-like arrangement. The direction of the fibers of the first set, as we all know, is from its attachment in the so-called ligamentum pectinatum, near the canal of Schlemm, backward to its attachment to the choroid. The muscle runs in a circle around the whole eye behind the iris; hence its name. The other system, the muscle of Müller, is made up of circular bundles of fibers, which occupy a position near the inner anterior angle of the ciliary body, the whole shape of the body being approximately that of a right-angled triangle, the base of which is in front, and its perpendicular next to the sclerotic.

In an emmetropic eye both of these sets of bundles are present, but there is by far a greater development of the longitudinal than of the circular. This is what is known as a perfect eye, and the presence of both of these sets helps to make it so. If we examine a section through the ciliary body of a hypermetropic, or far-sighted, eye, its muscle will surely be found to be made up chiefly of circular bundles, with a comparatively small development of the longitudinal. In myopia the entire circular system is more or less deficient; and the muscle consists of an excessive development of the longitudinal bundles.

The relations of these different sets of muscle bundles to the refractive condition of the eye are so constant that I might say (were we sufficiently expert) we might almost make the diagnosis of the *amount* of hypermetropia or myopia by examining sections through the ciliary body. We may ask what the reason of this is. Of course, we know that the primary reason why a hypermetropic eye should have a stronger muscle than an emmetropic or myopic eye, is that its muscle is much more taxed than in either of the latter conditions. For instance, an eye which is highly hypermetropic may have to use its muscle continually for both near and far vision. This is not the case with either emmetropes or myopes, since they can relax their muscles completely, and still see perfectly well in the region of their far points. At the same time, there are probably as many muscle fibers in a highly myopic as in a highly hypermetropic eye, and, since we are by no means sure that one muscle fiber is intrinsically stronger than another, the probability is that a myopic muscle is in reality just as strong as a hypermetropic one. Still, the myopic eye certainly requires less muscular activity than any other muscle. The positions of the two sets are peculiar, and, since we find that a myopic muscle is probably just as strong as a hypermetropic muscle, the reason of the weakness of the one and the strength of the other must depend upon some other factor than their respective potential energies. We may also argue that in a longitudinal system there would be sufficient power for all purposes of a hypermetropic eye, whereas it would leave an excess of power in the myopic; but Nature does not seem to take the same view, since she does not content herself with a provision of only longitudinal fibers in a hypermetropic eye, but changes the whole muscular structure. The probable reason for this we will discuss further on. Moreover, she does not seem willing to intrust a strong muscle to a myopic eye, but provides it with a longitudinal muscle, which is weak; the reason of which we shall also see subsequently. As a conservative measure, she places about the same number of muscle fibers in both, so that the same amount of nervous impulse can be used in all conditions of refraction.

In order to properly appreciate the objects of this arrangement, we must first make a distinction between the primary and the secondary work to be done by the ciliary muscle.

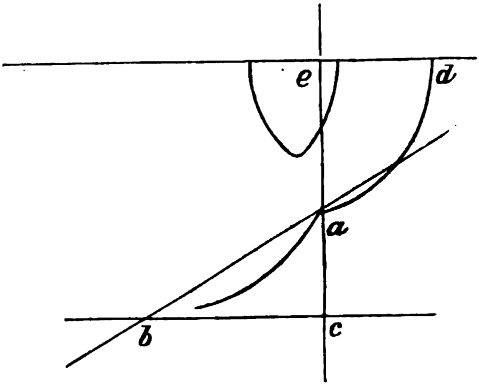
The primary work, which is naturally the same in both cases, consists in pulling the choroid and ciliary processes forward, and thereby relaxing the suspensory ligament. The available work done by the expenditure of so much muscular energy is only that which brings about the bulging of the anterior surface of the lens. This is the only factor which can add to the power of accommodation in the dioptric system.

A myopic eye, as we have already seen, has a goodly development of muscle fibers in the ciliary body, and its weakness must therefore depend, not upon the amount of muscular effort of which it is capable, but upon the effect it can have in enabling the lens to change its shape by virtue of its own elasticity. We therefore find its want of power, not in its potential, but what we might call its available kinetic energy. For instance, in a myopic eye, or one in which there are practically only longitudinal fibers, the contraction of the same number of these fibers would require an expenditure of as much muscular energy as would be expended in the contraction of the same number of muscle fibers in a hypermetropic eye, the main muscle of which is circular. The relative strengths must therefore depend upon some other factor, and, according to the laws of mechanics, this factor can only be the direction in which the two forces are working.

Since the bulging of the anterior surface of the lens is a negative result, the direction of a force which could allow it to bulge most would be in a line perpendicular to the direction in which it bulges, or, in the case of the eye (since the line of motion is directly outward), the direction in which a force must act to accomplish the greatest result must be perpendicular to the antero-posterior diameter, or axis, of the lens. The more the line of force deviates from this axis, the less will be its power in the direction of the axis.

In the myopic eye the line of action of the muscle is a straight line between its two attachments—that is, from the ligamentum pectinatum, anteriorly, to the attachment to the choroid, posteriorly. We therefore see that this line of force makes but a small angle with the antero-posterior diameter of the lens, and that, consequently, the available energy in accommodation in myopes is comparatively small. If we wish to determine the amount of available work done by a given amount of muscular contraction in either case, we can readily do so by resorting to what is known as the mechanical theory of the resolution and composition of forces.

This is done in the following manner: Draw a line of a certain length in the direction of force of the myopic muscle. This "certain length" must represent the amount of force expended in the contraction of the ciliary body. It will be oblique to the axis of the lens. To find what proportion of this force will *do work* in bulging the lens, draw from the upper end of this line another line perpendicular to the antero-posterior axis or diameter of the lens, and continue it both ways. From the other end of the original line of force draw a perpendicular to the second line. These last lines resolve the original force into its component parts. The smaller side will represent the amount of force which will be available in causing the lens to bulge, or that available in accommodation; the other component will represent the amount of energy which would be directly expended in pulling the choroid forward. The two components, therefore, hold the ratio to each other of sine and cosine of the angle between the axis of the lens and the line of action of the ciliary muscle.



The curve *da* represents the inner surface of the cornea, and the curved line *ab* that of the sclera. *e* is the lens. *a* is the attachment of the ligamentum pectinatum. From *a* draw *ab*, in the direction of contraction of the longitudinal fibers of the ciliary muscle, and let its length (*ab*) be the amount of a certain force in the contraction of that muscle. To resolve this force, draw the line *ac*, perpendicular to the axis of the lens, *de*. From *b* draw *bc*, perpendicular to *ae*; *ac* and *cb* will resolve the given force, *ab*, into its component parts. *ac* will then be the amount which will be exerted in the direction *ac*, and will be the only part which would cause the lens to bulge. *cb* will give that part which is directly expended in pulling the choroid forward.

The myopic eye is therefore a weak eye, and remains a weak eye, because the length of the optical axis requires that it should be so. In placing its muscle in this position (or doing away with the sphincter set), Nature has not supplied it with a superabundance of kinetic energy, the expenditure of which would be detrimental to the eye as a whole. If the muscle were too strong, any over-action would cause the focus of the combined ocular system to fall far in front of the retina, and, consequently, produce dispersion circles instead of distinct images.

In the case of a hypermetropic eye (where the circular system is greatly developed) the direction of contraction, or line of force, is entirely different. The greater development of the sphincter set makes the line of force and the available work in accommodation coincident, and, therefore, the greater component would be directly expended in causing the lens to bulge; whereas the smaller would do the work of pulling the choroid forward. The sphincter shape is therefore the strongest possible muscular arrangement for performing the work of accommodation.

The hypermetropic eye (being that which requires the greatest muscular strength) has a sphincter formed for it by Nature. The myopic, being an eye which does not require so much muscular effort, has a longitudinal ciliary muscle. We might add that, if the hypermetrope had a sufficiently large sphincter development, he might go through life without becoming aware of his anomaly of refraction; whereas, if this were not the case, it would soon make itself manifest by symptoms of asthenopia. The same would be the case in hypermetropic astigmatism.

It has been stated that these two muscles are designed to act as antagonists, and that their fibers are so interlaced that when the one contracts it pulls the other into relaxation. It is a fact that nearly all muscles in the animal economy have antagonists, and so do these ciliary systems, but probably not as muscle fibers. If it were true that these two sets were antagonistic, in the myopic eye, or where there are no circular bundles or at least a very small development of them, the myopic muscle would have no antagonist. Again, in a hypermetropic muscle the position of the bundles would exclude such an hypothesis, since the greater part of the circular fibers are at the inner anterior end of the muscle; hence, when this system contracts it would tend to displace the longitudinal set toward the lens, and, consequently, put these fibers on the stretch rather than bring them to relaxation. Again, they are probably controlled by the same nerve. The histological relations also show that antagonism is impossible; for we frequently find a set of fibers which start in a longitudinal direction and then bend suddenly around and run with those of the sphincter. If antagonism were Nature's object, she would certainly make a great mistake in allowing the same muscle fiber to run in two directions, so that each part would act as the antagonist of the other. A muscle would hardly be organized so that some of its fibers would work simultaneously in two opposite directions, and thereby destroy so much muscular energy.

Since muscles generally have antagonists, where should we expect to find the antagonists of the ciliary muscle? When the two sets have contracted it is easily demonstrated, by a repetition of the experiments of Hensen and Völkers, that the choroid is pulled forward. When the ciliary muscle relaxes, it can not push the choroid back again; and, unless it went back in some way, the suspensory ligament would not be pulled upon so as to compress the lens. Therefore, after one accommodation, the eye would remain accommodated for its near point. That the choroid really goes back, there can be no question; and, since muscles do not push in nature, there must be some factor behind the ciliary body to restore the choroid to its original place of rest by traction.

There seems to be but one force possible which could do this work. There are no independent muscle fibers in the body of the choroidal tissue, so that the only element must be *the elasticity of the choroid, which it possesses on account of the numerous elastic fibers found in this locality, and also the elasticity of the membrana elastica choroideæ.* It is therefore probable that, when the choroid is once pulled forward by the contraction of the ciliary muscle, the office of this elastic tissue is to restore it to it splace of rest, and, in so doing, it acts as an antagonist of the ciliary body.

We find, then, a wise provision of Nature in the fact that the choroid is only loosely attached to the sclerotic in the lamina fusca, but firmly adherent to the lamina cribrosa at the entrance of the optic nerve. Again, there is no reason why there should be elastic tissue in the choroid except that when it is once put upon the stretch it should contract. On the other hand, we see how necessary its contraction is to the eye in allowing it to accommodate itself for different distances in succession. I do not mean to say that the development of the ciliary muscle is in any way instrumental in producing anomalies of refraction; on the contrary, this development is more probably the result of the eye finding itself in a certain condition of hypermetropia or myopia, and an effort on the part of Nature to supply the means of correcting the defect.

The condition of myopia has been considered by various authors as the result of too close confinement in school-rooms, bad illumination, and faulty habits of education; and this opinion seems to be substantiated by a large collection of statistics, especially in Germany, among school-children and students. In this particular country, where primary education is especially severe, there is a large percentage of myopes.

As to the etiology of hypermetropia, there are many opinions. At the last meeting of the American Medical Association a paper on the development of the eye was read, in which the author sought to explain the occurrence of hypermetropia by an unusual development of ganglia in the orbit or near the young globe. According to this author, these ganglia, being unusually large, would press upon the embryonic ocular tissue, and would result in a dislocation of the posterior half of the ocular vesicle forward. This does not seem to me to be a possible factor in the production of hypermetropia, since at the time at which such ganglionic developments could have any effect there is no eye beyond the primary ocular vesicle. This, we know, is a very pliable tissue, from the manner in which it is sometimes distorted by the entrance of the hyaloid artery. Again, whatever shape it takes, in consequence of this disturbing influence, is rapidly corrected by the intra-ocular pressure from the developing vitreous. Besides, from the softness of the mesodermic tissue, no growth could have a great influence on the ocular vesicle unless it came in direct contact with it, and even then, to produce hypermetropia, it would have to run around the whole globe, and push from all sides at the same time.

Even if such an inordinate development of ganglia did exist within the young orbit (or, I might say, posterior to the ocular vesicle, since there is no orbit at this time), it would probably produce, not hypermetropia, but myopia. The primary and secondary ocular vesicles are always in connection with the walls of the cerebral vesicle by the stylus for the optic nerve, and, from the connection of these parts, it is highly probable that this stylus would hold the posterior part of the retina in position. Any outward pressure would then cause the *sides* to move outward and leave the posterior parts at least nearer their natural position. This would cause a *lengthening* of the optical axis rather than a *shortening*. Since the sclera and choroid have not commenced to form at the time to which the author seems to have referred, it is probable that we are still ignorant of the embryonic conditions which induce hypermetropia or myopia, or which in any way determine the ultimate refraction of the adult eye.

(*To be continued.*)

Reviews and Literary Notes.

A Manual of Histology. Edited and prepared by THOMAS E. SATTERTHWAITE, M. D., of New York, President of the New York Pathological Society, etc., in association with Drs. Thomas Dwight, J. Collins Warren, William F. Whitney, Clarence J. Blake, and C. H. Williams, of Boston; Dr. J. Henry C. Simes, of Philadelphia; Dr. Benjamin F. Westbrook, of Brooklyn; and Drs. Edmund C. Wendt, Abraham Mayer, R. W. Amidon, W. R. Birdsall, D. Bryson Delavan, C. L. Dana, and W. H. Porter, of New York City. With 198 illustrations. New York: William Wood & Co., 1881. Pp. xiv–478.

THE profession in this country are to be congratulated upon the appearance of a treatise on histology, compiled by American authors, and issued from an American press, which, in point of accuracy and completeness, can hope to vie with the works of foreign authors that have hitherto been our exclusive guide. So much good, original work has been done here in microscopy that the speedy appearance of some book like the present was inevitable; and the public had a right to expect that when it did come out it would be creditable to its authors and to American science. From a somewhat careful perusal of Dr. Satterthwaite's book, we believe that we are justified is asserting that in this case the expectations thus raised will not be disappointed.

Less elaborate than the manuals of Stricker, Frey, and Ranvier, the volume compiled by Dr. Satterthwaite and his co-laborers will, in our opinion, be quite as valuable as they to the student of histology as well as to the general practitioner. Its most salient feature, and that which to our mind constitutes its peculiar merit, is the eminently practical air which pervades the entire work. It has evidently been compiled by working microscopists who have an intimate practical acquaintance with the subjects of which they are treating. Details of preparation, modes of examination, hints as to the comparative value of different methods of work—all such information, in short, as is given in the laboratory by an instructor to his students—are abundantly contained in the pages of this book. This practical character gives a sense of security to the reader, and insures a greater confidence in the authors' statements than any display of erudition, however extensive, could have produced.

The fact that different divisions of the subject have been treated by different authors implies an inequality in the merit of the several parts. Nevertheless, the style of execution is more uniform than would be supposed; and there is no part of the work which has been done in a poor or slovenly manner. If we were to signalize particular portions as more deserving of mention than the rest, we should select the general introduction on the materials and methods of microscopic work by the editor, the description of the development of bone by the same, the chapters on the liver and kidney by Dr. Mayer, the chapter on the blood-vessels by Dr. Wendt, that on the central nervous system by Dr. Amidon, and the chapters on the thick cutis vera and the mammary gland. We have singled out these portions for particular commendation, because they appeared to us to be especially clear descriptions of especially difficult subjects, and because they seem to bear most plainly the impress of individual thought and research. All of the book, however, is worth reading, and as a whole we can recommend it cordially to our readers.

The illustrations, while not claiming much on the score of artistic finish, are perhaps on that account of more value to the working microscopist as showing him just what he ought to observe with his instrument. A novice is often perplexed at the variety and number of details which his microscopical picture presents, and he, therefore, neglects to consider carefully the broad general outlines which it is essential for him to know, and which alone are given in such illustrations as this work contains. Most of the cuts will be familiar to the readers of the book, but some are new, and have been prepared especially for it.

The typography and binding are in keeping with the general excellence of subject-matter and illustration.

A Manual of Practical Normal Histology. By T. MITCHELL PRUDDEN, M. D., Director of the Physiological and Pathological Laboratory of the Alumni Association of the College of Physicians and Surgeons, New York, etc. New York: G. P. Putnam's Sons, 1881. Pp. vi–265. [Price, $1·25.]

THOSE who have within a few years attended the histological course at the College of Physicians and Surgeons will recognize in Dr. Prudden's little book only an amplification of the notes there in use. As now issued, it is a tasteful little volume, containing a concise description of as much of histology and of the technicalities of microscopical working as will be sufficient to start a beginner well on his way in this fascinating study. In point of clearness and accuracy the book leaves little to be desired, and as regards style it is far superior to most text-books of similar aims and pretensions. The method pursued is the same as that generally employed; viz., after an introductory description of the way in which objects are prepared for the microscope, the several tissues are taken up in order, their structure is described, and then the special means by which they are made ready for examination are enumerated. All this is accomplished in a brief space, and yet satisfactorily, and throughout can be discerned the hand of a careful and painstaking writer. The same care has in general been followed out in the typographical work, although we have noticed a few misprints, such as that on p. 62, where the word "curpuscles" has inadvertently been allowed to remain in the text. Apart from such trifles we find no exception to take to Dr. Prudden's little book, and to the beginner in the path of histological research it can be commended as a safe and serviceable guide.

The Art of Voice-Production, with Special Reference to Methods of Correct Breathing. By A. A. PATTOU. New York: G. P. Putnam's Sons, 1882. Pp. 106. [Price, $1·25.]

THIS work is one of such exceptional merit that full justice can hardly be accorded it within the limits of this short notice. Although consisting of but little more than one hundred pages, it is the most comprehensive, thorough, and satisfactory exposition of the subject which has been presented. Throughout the book the author manifests every evidence, not only of an exhaustive knowledge of the factors which are concerned in voice-production, but also of a long-continued and practical experience in the intelligent application of true principles in the process of vocal training.

It might be supposed that such a book would appeal simply to throat specialists. This, however, is not the case, for, while it will be read with the greatest interest by those best informed in such matters, it will, nevertheless, from its breadth, clearness, and practical utility, challenge the attention of the general practitioner. This is evident when we consider the question of vocal training from a purely medical stand-point, remembering that among professional singers of the better class consumption is almost unknown, that wrong management of the breath in singing is apt to produce uterine displacement in women, that fine voices are ruined and obstinate throat affections induced by improper methods of voice-production, not to mention the many other illustrations which might be given. Mr. Pattou is an ardent advocate of the true "abdominal method" of breathing, but he is careful to distinguish this from the faulty methods which, while passing under the same name, are entirely different alike in application and in result. Perhaps the most valuable section in the book is that which relates to the training of those in whom the vocal apparatus is either feeble or actually disordered, and whose vocation, as in the case either of singers or of public speakers, is seriously affected thereby. The "American voice" has become a subject of such ridicule, and in many cases of such well-deserved reproach, that, in this country at least, "Voice-Production" can not have too wide a circulation, even among those whose vocal efforts never extend beyond the realm of ordinary conversation. From an æsthetic point of view the book is the outcome of a true and profound artistic appreciation of the capabilities and the beauties of the human voice. The part of the publisher has been done with unusual elegance.

Habitual Mouth-Breathing: its Causes, Effects, and Treatment. By CLINTON WAGNER, M. D., Professor of Diseases of the Throat, University of Vermont, etc. New York: G. P. Putnam's Sons, 1881. Pp. 52. [Price, 75 cents.]

So little has been written upon the important subject of which this work treats that Professor Wagner has placed the profession under obligation in calling attention to it. That habitual mouth-breathing is a pernicious habit, attended by many and serious evil results, requires no great amount of observation to prove, and yet, evident as are its effects, we rarely, if ever, hear of any effort being made to prevent or remove its causes. The writer, after referring to the literature of mouth-breathing, describes successively the necessity for normal respiration, the various causes of mouth-breathing, its results, and, finally, the means for their relief. The style of the work is clear, the points made are exceedingly valuable and suggestive, and the subject is illustrated with three instructive drawings. A very full and interesting discussion of the paper is appended, which adds materially to its value.

What Every Mother Should Know. By EDWARD ELLIS, M. D., late Senior Physician to the Victoria Hospital for Sick Children, etc. Philadelphia: Presley Blakiston, 1881. Pp. xii–17 to 132, inclusive. [Price, 75 cents.]

To those who are familiar with the author's work on Diseases of Children this little book will not require a recommendation; it is, in fact, a popularization of the views therein expressed. The author has a happy faculty of laying stress upon the salient points of a subject which makes his writing very terse and satisfactory. The present work contains a great many very valuable points with reference to the care of children.

The Metric System in Medicine. Containing an account of the Metric System of Weights and Measures, Americanized and simplified, a comprehensive Dose Table, and three hundred Practical Illustrations of Metric Prescription Writing, selected from Recipes in actual use in hospital and out-door practice. By OSCAR OLDBERG, Phar. D., Medical Purveyor, U. S. Marine-Hospital Service, etc. Philadelphia: Presley Blakiston, 1881. Pp. 182. [Price, $1·50.]

THE metric system is explained, its history is given, and reasons are advanced for its adoption. The bulk of the work is taken up with a long list of popular prescriptions, written according to the metric system; and by a posological table including the medicines, and their preparations, which are in general use. While it seems scarcely necessary to have a book upon the metric system alone, yet the list of prescriptions and the posological table may prove an attraction to a certain class of readers.

The Wilderness Cure. By MARC COOK, author of "Camp Lou." New York: William Wood & Co., 1881. Pp. 153.

THIS little book really satisfies a demand. The whole subject of camp-life for invalids is treated in a very practical and detailed manner. Good advice is given in all matters connected with the subject, and such a vivid and realistic picture is painted that an inexperienced person can get a very fair idea of what he may expect. Expenses, utensils required, etc., are all fully described.

BOOKS AND PAMPHLETS RECEIVED.—The International Encyclopædia of Surgery. A Systematic Treatise on the Theory and Practice of Surgery, by Authors of Various Nations. Edited by John Ashhurst, Jr., M. D., Professor of Clinical Surgery in the University of Pennsylvania. In six volumes. Vol. I. New York: William Wood & Co., 1881. Pp. xl–717. ══ Leçons de Clinique Thérapeutique professées à l'Hôpital Saint-Antoine par le Docteur Dujardin-Beaumetz, Médecin de l'Hôpital Saint-Antoine, etc. Recueillies par le Docteur Eug. Carpentier-Méricourt et revues par l'auteur. 2^{me} série.—1^{er} fascicule. Traitement des Maladies du Foie et des Reins. Paris: Octave Doin, 1881. Pp. viii–244. ══ Recherches Cliniques et Thérapeutiques sur l'Épilepsie, l'Hystérie et l'Idiotie. Compte rendu du service des épileptiques et des enfants idiots et arriérés de Bicêtre pendant l'année 1880. Par Bourneville, Médecin de Bicêtre, et H. d'Olier, Interne de Service. Paris: Bureaux du "Progrès Médical," 1881. Pp. xxxviii–78. ══ Diseases of Women, including their Pathology, Causation, Symptoms, Diagnosis, and Treatment. A Manual for Students and Practitioners. By Arthur W. Edis, M. D. Lond., etc., Assistant Obstetric Physician to the Middlesex Hospital, etc. With 148 illustrations. Philadelphia: Henry C. Lea's Son & Co., 1882. Pp. 576. ═══ Simple Note sur l'Emploi du Prisme pour provoquer la Diplopie Monoculaire. Application à la Recherche de la Simulation. Par M. le docteur S. Baudry. Lille, 1881. Pp. 9. ═══ A Study of the Tumors of the Bladder, etc. By Alex. W. Stein, M. D., Surgeon to Charity Hospital, etc. New York: William Wood & Co., 1881. Pp. xi–94. ═══ Opium-Smoking in America and China. By H. H. Kane, M. D., etc. New York: G. P. Putnam's Sons, 1882. Pp. xiii–156. [Price, $1.] ═══ The Other Side of the Opium Question. By W. J. Moore, L. R. C. P. Edin., etc., Deputy Surgeon-General, H. M. Forces, etc. London: J. & A. Churchill, 1882. Pp. 95. [Price, 2s. 6d.] ═══ Marriage and Parentage, etc. By a Physician and Sanitarian. New York: M. L. Holbrook & Co., 1882. Pp. viii–8 to 185, inclusive. ═══ A Treatise on Human Physiology, designed for the use of Students and Practitioners of Medicine. By John C. Dalton, M. D., Professor of Physiology and Hygiene in the College of Physicians and Surgeons, New York, etc. Seventh edition, with 252 illustrations. Philadelphia: Henry C. Lea's Son & Co., 1882. Pp. 722. ═══ Memoranda of Physiology. By Henry Ashby, M. D. (Lond.), etc. Third edition, with Additions and Corrections by an American Editor. New York: William Wood & Co., 1882. Pp. xii–319. ═══ Fistula, Hæmorrhoids, Painful Ulcer, Stricture, Prolapsus, and other Diseases of the Rectum: their Diagnosis and Treatment. By William Allingham, F. R. C. S. E., Surgeon to St. Mark's Hospital for Fistula, etc. Fourth edition. Philadelphia: Presley Blakiston, 1882. Pp. viii–332. [Price, $3.] ═══ The Sympathetic Diseases of the Eye. By Ludwig Mauthner, M. D., Royal Professor in the University of Vienna. Translated by Warren Webster, M. D., Surgeon, U. S. Army, and James A. Spalding, M. D., etc. New York: William Wood & Co., 1881. Pp. 220. ═══ Contributo allo Studio delle Anemie Progressive. Anemia Ganglionare. Pel Dott. Guido Banti. [Reprint.] ═══ Report on Diphtheria. By Franklin Staples, M. D., Winona. ═══ Proposed Reforms in the Coroner's Office. By Clark Bell, Esq., New York. ═══ Address delivered at the Dedication of the Hall of the Boston Medical Library Association. . . . by Oliver Wendell Holmes, M. D., President, etc. ═══ Transactions of the Medical Society of the State of New York for the year 1881. ═══ Transactions of the Medical Association of Georgia. Thirty-second Annual Session, 1881. Edited for the Association by A. Sibley Campbell, M. D., Secretary, Augusta, Ga. ═══ Transactions of the Medical Society of the State of North Carolina, 1881. ═══ Annual Report of Providence Hospital, Washington, D. C. ═══ Fifteenth Annual Report of the Columbia Hospital for Women and Lying-in Asylum, P. J. Murphy, M. D., Surgeon in Charge. ═══ In addition we have received a number of pamphlets, the separate acknowledgment of which is prevented by lack of space.

Proceedings of Societies.

NEW YORK OBSTETRICAL SOCIETY.

A STATED meeting was held November 15, 1881, Dr. CHARLES C. LEE, President, in the chair.

DEATH FROM PRIMARY HÆMORRHAGE IN REMOVAL OF THE CERVIX UTERI FOR CANCER.—Dr. M. D. MANN presented a specimen and related the following history: About September 20th a lady came to him for advice. She was thirty-five years of age, had been married sixteen years, and had borne three children. She had had no miscarriages. Her youngest child was two years old. Until a year previous to consulting him she had always been in good health; had never had any signs of uterine trouble. At this time she was taken with bearing-down pains in the pelvis, and had frequent desire to micturate, accompanied by a great deal of pain. On the first of January last she began to flow, and continued to lose blood, with but slight interruptions, up to the time she consulted Dr. Mann. She then had slight pain in the supra-pubic region. Although she was a large, stout woman, she was pale and anæmic, and evidently had lost considerable blood. Examination showed a bilateral laceration of the cervix, with slight enlargement, and between the lips of the laceration there was a small amount of what Dr. Mann took to be cancerous tissue, about as large as a silver five-cent piece. He advised an operation, to which she readily consented. A conical-shaped piece was removed with the scissors, and beneath the outer surface was a small cavity of softened cancerous tissue. Considerable, but not excessive, hæmorrhage occurred, which was promptly and very effectually checked by the application of vinegar. As there still remained what appeared to be a small nodule of cancerous infiltration in the posterior surface of the wound, it was cut off with the scissors, and instantly there gushed forth a stream of blood, flooding the vagina and the table upon which the patient lay. Vinegar was injected, but it had not the slightest effect in arresting the hæmorrhage. The vagina was then firmly tamponed with cotton, but the blood soon soaked through this. The tampon was removed and hot water was injected, but without effect. In the mean time Paquelin's cautery had been heated and was now applied, but before the source of the hæmorrhage could be reached the platinum had been so cooled by the blood that it had little effect on the tissues. The vagina was again tamponed; the patient was pulseless from loss of blood, and a cold sweat was on the surface. Hypodermic injections of brandy were administered freely. The hæmorrhage stopped for a few moments, but again very soon made its appearance through the second tampon. This was then taken out, and cotton soaked with persulphate of iron was packed into the vagina very tightly, but the blood soon came through this also. A large piece of alum was then applied to the seat of hæmorrhage, which had the effect of stopping it. It was more than probable, however, that it ceased because no more blood remained in the vessels to come away. All this occurred within fifteen minutes from the time of the operation. The patient was entirely pulseless; the heart was beating feebly; jactitation was present; and she died a few minutes after coming partially from under the influence of ether. Dr. Mann did not think that operating with the cautery would have effected any better results, for he did not believe that the vessel from which hæmorrhage proceeded, and which was probably the seat of aneurismal dilatation, could have been sealed up by any such method. Dr. Emmet had recommended, as a means of checking the hæmorrhage, passing a needle around the bleeding point and bringing the tissues together with a silver wire suture, but the hœmorrhage was so abundant in this instance, and the vagina was so full of blood, that one could not see to do this. Dr. Mann thought that perhaps with the finger of one hand in the rectum and the thumb of the other in the vagina the bleeding point might have been compressed between them, and hæmorrhage thereby checked sufficiently long for a needle to be passed and the vessel secured. He thought this case called up a large question for discussion, namely, the best methods for operating on the cervix for the removal of cancer, and also the question as to what cases it was proper to operate upon. Had he known the previous history of this patient he probably would not have operated. She had been to Dr. Storrs, of Hartford, who by a simple examination caused frightful hæmorrhage, which he was unable to check for half an hour. After that he made applications, and reduced the granulating surface considerably and completely stopped all hæmorrhage, so that Dr. Mann had no cause to think that there was any peculiar tendency to bleeding in this case. He remarked that the case was, from all he could see, an eminently proper one for operation. The disease had not advanced very far. The vagina was not infiltrated, nor was there any thickening of the tissues around the womb. In fact, it was just such a case as we would choose for operation and confidently expect the best results. It only showed what unexpected danger might be present in such cases, and should make us very guarded in our prognosis, even in cases apparently favorable.

On motion, the discussion of this case was postponed until after the recital of the following case:

DEATH FROM SECONDARY HÆMORRHAGE AFTER REMOVAL OF THE CERVIX UTERI FOR CANCER.—Dr. P. F. MUNDÉ related the case of a patient thirty years of age, the mother of four children, the youngest four months old, which she was nursing. Examination revealed epithelioma of the cervix, of so great size that it was almost impossible to reach the posterior wall of the cervix. One peculiarity about the case was that this disease must have existed at the time of the birth of the last child, four months ago, yet the labor was easy and perfectly normal, and hæmorrhage from the disease did not occur until a month or more after labor. The patient was brought to Dr. Mundé from the country by her physician, to consult him with regard to hæmorrhage. Notwithstanding the great extent of the disease, and the fact that the uterus was no longer freely movable, Dr. Mundé considered the chances for prolongation of life by operation fair, and the patient took a room at an hotel, three blocks distant from the College of Physicians and Surgeons. The operation was performed at the college, the patient having been anæsthetized with ether in the waiting-room. It was decided to operate with the galvanic-cautery wire, which was manipulated by an experienced person sent by the manufacturers of the instrument used. The operation was conducted with only medium rapidity. The cervix was removed evenly on a line with the roof of the vagina, but there still remained a considerable amount of infiltration above. Dr. Mundé proceeded to scoop this out with the sharp curette, which he did with the greatest ease, using scarcely any force, as he had often done in similar cases. On the left side, about the junction of the vagina with the cervix, a little arterial hæmorrhage took place, which, however, was easily checked with Paquelin's cautery, with which also the whole raw surface was seared over five or six times. All hæmorrhage stopped completely, and the vagina was tamponed securely with cotton soaked in a saturated solution of alum, with sufficient carbolic acid for disinfecting purposes. After the patient's recovery from the anæsthesia she was placed on a stretcher, carried down stairs, put into an ambulance, and driven the three blocks to her hotel, where she was carried to her room on the stretcher, and placed in bed. She had no pain, and was doing perfectly well. Forty-four hours after the operation the tampon was removed, being offensive, but not a drop of blood had been lost. The vagina was cleansed with cotton soaked in a carbolic-acid solution, and a fresh tampon soaked in alum solution was inserted, though not quite so firmly as the first, for there was no evidence whatever of danger from hæmorrhage. About fifteen minutes after Dr. Mundé left her, considerable but not alarming hæmorrhage took place, and he was sent for, but did not arrive until two hours later. Meanwhile, Dr. Fowler saw the patient. On his arrival, Dr. Mundé removed the tampon, which was soaked with blood, and also some clots from the vagina, whereupon blood gushed forth in a torrent. He immediately began to crowd cotton into the vagina until no more could possibly be introduced. Manual compression was kept up for nine hours by relays of students, and the hæmorrhage was thus arrested for twenty-six hours. A T-bandage was put on, the patient rallied, and, though quite low, rested comfortably through the night. The urine was withdrawn with a catheter. On the afternoon of the next day, twenty-six hours after the first hæmorrhage, Dr. Mundé happened to call, and found hæmorrhage had again just begun. The patient had been seized with an uncontrollable desire to pass urine, had torn off the T-bandage, and was making bearing down efforts, and with this there poured forth another gush of blood. More cotton was introduced, which arrested the hæmorrhage for about an hour, when suddenly straining came on again, blood poured forth, and continued to do so until she died, three hours later, or thirty hours from the time of the first hæmorrhage, and seventy-six hours after the operation. The vessel which was wounded at the time of the operation was doubtless a small artery, and the blood was light-colored; the blood which was lost later was darker-colored, and must have come from a larger vessel, probably from a plexus of veins, and also from the small artery, which were opened by the separation of the slough produced by the cautery. Dr. Mundé had found a few cases recorded in which death took place from secondary hæmorrhage, but in none so early as the second day. Dr. Mundé wished to state emphatically that in this case the patient's removal from the clinic to her hotel had nothing whatever to do with the secondary hæmorrhage. Had the bleeding come on within a few hours after her transfer the case might have been different, he would admit; but, from the amount and character of the hæmorrhage, its wholly unexpected occurrence, and its origin, there could, he thought, be no reasonable doubt that the slough would have been disturbed, and the hæmorrhage have occurred in the same manner, if the operation had been performed in a hospital or at the patient's home.

Dr. T. A. Emmet, referring to Dr. Mann's case, said he had had several cases in which the hæmorrhage was almost as great as that post partum, and had he not been ably assisted the patients would probably have died. A practical point in this operation was, that after the mass was removed the uterus tended to retract from the divided vaginal surface, and while in that position, with the vessels in loose tissue, if bleeding occurred it would be excessive. His plan, therefore, was to take firm hold of the stump of the uterus with the tenaculum and draw it far in advance of the loosened vaginal tissue, thereby compressing the vessels and arresting hæmorrhage until sutures could be passed through the flaps formed by drawing the loosened vaginal tissue over the stump. After that was done he had never known hæmorrhage to take place. He had had secondary hæmorrhage come on after the use of the cautery, probably in as many as twenty cases, and it was therefore a matter of great moment to decide what was the best mode of operating. He had never seen secondary hæmorrhage after operating with the scissors, the stump being covered by the flaps in the manner referred to. He had, as he had stated, frequently seen hæmorrhage occur several days after operating with the cautery, usually coming on at night, and he was sure that he had not exaggerated the number. He recalled one case in which he sat up the greater part of the night holding the uterus down with the tenaculum by one hand, and with the finger of the other making pressure upon the bleeding point until assistance could be got. He thought it was exceedingly dangerous to operate with the cautery. If we were to have any bleeding it was better to have it at the time of the operation, when we were present and prepared to control it, and this could always be done if the flaps were drawn firmly over the stump. It would be a matter of great importance if it could be settled at what time we should operate in these cases, or indeed whether we should operate at all; whether any good was derived from the operation. He was inclined to believe that, when the growth was very slight, and involved only a portion of the neck, the diseased portion should be removed, and in the manner referred to; but that when the disease involved the vaginal tissue the patient's life was not prolonged one day. He even doubted if such patients lived as long as they would if they were simply well cared for and no operation was performed. About all we gained, under ordinary circumstances, by removal of the mass, was a less degree of blood poisoning. The disease was almost sure to return within a year, and in the two or three cases in his practice in which it had not returned he was disposed to think he had erred in the diagnosis; that they were not cases of true epithelioma.

Dr. BYRNE said he had seen but a single case of secondary hæmorrhage following removal of the cervix with the cautery, and in that case it occurred through imprudence. The patient insisted on getting out of bed and going to the water-closet, contrary to instructions. The hæmorrhage was trifling, however, and the house physician was enabled to control it. He was of the opinion that the liability to hæmorrhage depended very much upon the manner of operating with the cautery, and he was thus led to surmise that in the cases referred to by Dr. Emmet the heated wire must have been permitted to pass through the tissues too rapidly, and that after-cauterization of the stump, if not entirely omitted, might have been imperfectly done. He had operated in such cases with the cautery probably as often as any surgeon in this country, and, if secondary hæmorrhages were at all frequent, or in any manner attributable to this method of operating, it was a very remarkable circumstance that he had never had a case of the kind except the one referred to. He thought these good results must be due to the manner in which he used the cautery, which he then briefly explained. In the first place, the power of the battery should be regulated according to the length of wire which encircled the part to be removed. If, for example, a small loop, say an inch in diameter, were acted upon by a current sufficient to heat twelve or fifteen inches of the same wire to a cherry-red, it would cause as much hæmorrhage as if the mass were removed with a scalpel. Again, the wire should not be drawn through continuously, as was usually done; the operator should merely tighten the slack, and thus layer by layer the tissues would be not only slowly severed, but thoroughly cauterized at the same time. The part embraced by the loop having been removed, he next grasped the internal walls of the cervix with a double expanding tenaculum of his own construction, drew down the stump, and went carefully over it, especially the circumference, with the dome-shaped cautery. If the cervical cavity were involved above the line of excision he removed the softened tissue with the scoop, and then applied the cautery. He then usually applied a ten-per-cent. solution of carbolic acid in glycerine to the stump by means of a small sponge and removed the speculum. After four or five days he ordered carbolized water to be injected into the vagina twice a day, which constituted the entire treatment. In menstruating women he guarded against contraction of the cervix by occasionally introducing a suitable instrument. Dr. Mann's case was very interesting, and reminded him forcibly of one which he met with about seven years ago. The case was one of ulcerating cancer of the cervix, but not cauliflower in character. The shape of the cervix was such that the loop of wire could not be passed round it, and he therefore proposed to remove a cone-shaped piece from the cervix with the cautery knife. The operation was nearly completed, only a small portion of tissue of half the thickness of the little finger remaining, when the knife gave way. Not being prepared for this accident, and while trying to improvise something to take the place of the knife, the physician in charge of the case remarked that the piece was so small that it might just as well be cut with the scissors, which he accordingly did, and instantly a flood of hæmorrhage, such as he had never before witnessed, took place. Previous to that not a drop of blood had been lost. The patient would have died at once had he not made compression above the bifurcation of the abdominal aorta until the vagina was thoroughly tamponed. It was quite possible that there was some abnormal dilatation of a vessel, and that the hæmorrhage would have occurred had the operation been completed in the manner in which it was begun. Dr. Byrne again emphasized the importance of attention to the details of the operation, such as the regulation of the heat in accordance with the amount and character of wire or instrument used, etc.

Dr. Emmet remarked that he was satisfied that hæmorrhage could be prevented at the time of the operation by the use of the cautery. But the question was as to the danger of subsequent hæmorrhage from sloughing, or when the slough was thrown off.

Dr. Byrne stated that in his experience the sloughing was very limited; the *débris* and charred material came away in a granular-like form rather than in large masses. In his early operations he was astonished to find that the sloughing was so superficial, yet further observation proved that such was the rule.

Dr. Emil Noeggerath remarked that the experience of each of the gentlemen who had spoken concerning the cautery seemed to counterbalance that of the other. If good results, such as Dr. Byrne had obtained, depended alone upon the exercise of proper precautions in the use of the cautery, nothing remained to be done but for each surgeon to make himself proficient in the use of this instrument. He thought, however, that the question presented another aspect. Hæmorrhage did not always occur on the second or third day; it occurred also on the eighth or ninth, and at that late period it could not be due simply to the manner in which the cautery had been applied. He referred to two cases, in one of which hæmorrhage occurred on the eighth, and in the other on the ninth day after the use of the cautery, and, strangely enough, neither of these cases was of a malignant character, but the disease was an areolar hyperplasia with enormous development of the neck of the uterus. He believed hæmorrhage might occur on the second or third day after the operation with the electric wire, either because proper precautions were not taken, or because of the difficulty of searing the tissues sufficiently deep; but the late hæmorrhages had nothing to do with the manner in which the cautery was applied. The question then arose, was it not better to abandon the cautery, and operate with the scissors, according to Emmet's and Sims's plan, covering the stump with flaps, and thus avoiding such danger of subsequent hæmorrhage? The following considerations led him not to adopt the latter method: When the stump was covered with flaps of healthy mucous membrane and there was a relapse of the disease, it progressed usually just as rapidly as if the operation had been done by any other method. More than thirty years ago healthy skin was transplanted to the breasts after extirpation for cancer, but this method was given up again because the disease progressed in the tissues beneath as rapidly as if it were allowed to granulate. In 1867 Dr. Noeggerath operated upon a patient for beginning carcinoma, and she was well to-day. Had the wound been covered with flaps, doubtless she would have died, and for this reason: that a fortnight after the operation there were patches of grayish, unhealthy-looking granulations, being evidently a return of the malignant disease. These he cauterized with sulphuric acid, and the patient recovered. He mentioned a similar case in which he operated in 1868, and the patient was well to-day, and another in which the woman was well five or six years after the operation. He therefore thought that in cases in which an operation was performed for malignant disease the wound should be left uncovered, thus giving an opportunity for after-treatment. In cases of benign hypertrophy of the cervix the flap operation was best. Dr. Noeggerath thought that the dangers of hæmorrhage on the second or third day were slight if the precautions laid down by Dr. Byrne were fully observed; and that the liability to late hæmorrhage was more than counterbalanced by the advantage of the possibility of after-treatment.

Dr. W. T. Lusk prefaced some remarks upon a case which might have some bearing upon the explanation of the accident in Dr. Mann's case by saying that in the patients who came to Bellevue Hospital with cancer of the uterus the disease was usually in an advanced stage, and that the treatment he adopted was to remove as much of the diseased tissue as possible with the scissors or cautery wire, then scoop out the remainder with Simon's scoop, and afterward apply the cautery over the surface, more for the purpose of preventing absorption of septic material by the exposed lymphatics than to prevent hæmorrhage. The wound was then dressed for a time with chloro-acetic acid, and for five or six months the patients were often relieved from hæmorrhage and fœtid discharges. But, of course, the disease in this advanced stage returned again, and finally proved fatal. Last winter a case was treated in this manner, and three or four days after the operation, in the presence of Dr. Mundé, he went to dress the wound as usual with chloro-acetic acid. Upon introducing a large glass speculum, by mere accident he observed a large pulsating vessel which had been exposed by the scoop. Had he proceeded with the operation it certainly would have been ruptured and a fatal hæmorrhage would undoubtedly have occurred. The patient died four or five months afterward from the natural course of the disease. It was probable that such a vessel had been opened by Dr. Mann.

Dr. M. A. **Pallen** remarked that the discussion seemed to have turned upon the method of operating rather than the condition to be operated upon. He thought that, if, before the operation was begun, silver-wire sutures were passed through the cervix just above the point where the excision or scooping was to be done, a means would be afforded for pulling down the organ and preventing hæmorrhage. Had Dr. Mann taken this precautionary measure he might possibly have saved his patient. Dr. Pallen had never had but one case of severe hæmorrhage at the time of the operation, and on that occasion he was assisted by Dr. Hodgen, of St. Louis. Dr. Pallen threw two silver wires above the bleeding point, brought it down and ligated it, and fastened it to the posterior vaginal wall. He also asked if pressure upon the aorta through the rectum might not be practiced with advantage. He had seen severe hæmorrhage attending the use of the cautery in the hands of several experienced surgeons, and referred to a case in the Woman's Hospital, the operation being performed by so expert an operator as Dr. Thomas. If any kind of cautery were used he preferred the Paquelin, which he thought could be manipulated with greater accuracy than the electric wire. He referred to a case in which the operation was a benefit and the patient was still living, although the excision of the epithelioma was performed a number of years ago, and in another case he kept down the granulations after the operation, as mentioned by Dr. Noeggerath, and the patient lived several years, and finally died of cellulitis caused by a deeper operation performed by another physician. He asked whether any benefit was to be derived from the so-called treatment by arsenical saturation, after removal of the diseased parts.

Dr. **Emmet** referred to a case he had seen in private practice some years ago, operated upon by Dr. Sims, in which the battery was not in working order, and scarcely heated the wire to a dull-red color, so that the operation was exceedingly tedious; and yet secondary hæmorrhage occurred about the fifth or sixth day after the operation, and it was with the greatest difficulty that the patient's life was saved. The hæmorrhage in that case certainly was not due to using the wire at too great a heat, for, as the battery did not work well, it was scarcely possible to heat it sufficiently to enable them to go on with the operation at all.

Dr. **Byrne** thought this operation was as if the cold wire or écraseur had been employed, with which the tissues of course would not be sufficiently seared to prevent secondary hæmorrhage. With regard to the questioned utility of these operations, he could not allow this discussion to close without recording his unqualified approval of them, and his confidence in their great and often permanent value when properly conducted. In support of this position he could cite clinical facts which would be found too convincing to be ignored, and many cases so very similar to those related by Dr. Noeggerath that he had no hesitation in fully indorsing his views. One of his earliest cases, the history of which he had been able to follow up, was that of a lady in Brooklyn whose family history with regard to hereditary predisposition to the disease was of the very worst kind. Her mother, a cousin, and a number of relatives had died of cancer. She was operated upon about twelve years ago, and for a time after the operation appropriate topical applications were made to some indolent granulations which looked suspicious. She was now perfectly well. Another patient, operated upon in 1873, where much of the portio vaginalis had already been eaten away, and where the entire remaining portion was excised and well charred with the cautery, was well to-day. An old lady, now sixty-nine years of age, residing in the eastern part of this city, was operated upon for a very bad ulcerating cancer, which had eaten away the entire cervix and had spread within to a great extent. The operation was performed in April, 1877. The uterine cavity was thoroughly scooped out with a sharp curette. Acetic acid was applied to dry up the parts, and the interior of the organ was thoroughly charred by means of the galvanic cautery. She too was now perfectly well. Dr. Byrne referred to another similar case, and said he could mention many more in which there had not been a relapse for several years after the operation. He said we should never refuse, even in bad cases, to perform an operation which, besides being as free from danger as any other surgical procedure worthy of the name of an operation, rarely failed to afford great relief, and often resulted in a permanent cure.

HENRY J. GARRIGUES, M. D.,
B. F. DAWSON, M. D.,
FRANK P. FOSTER, M. D., *ex-officio*,
Committee on Publication.

A STATED meeting was held December 6, 1881, Dr. CHARLES C. LEE, President, in the chair.

EXTIRPATION OF THE UTERUS WITH LARGE FIBROID TUMORS BY LAPAROTOMY.—Dr. B. F. DAWSON presented a specimen, with the following history: The patient was thirty-nine years of age, a negress. She had suffered severely for eighteen months from pains and hæmorrhoids, and had undergone a variety of treatment by different physicians. Dr. Dawson saw her for the first time in the latter part of last winter, at which time she was suffering from profuse menorrhagia and metrorrhagia, due to large fibroid growths. The hæmorrhage continued during the summer, and, the patient becoming more and more emaciated, operative interference was advised. She rapidly became so reduced in strength that, after the last attack of menorrhagia, which occurred about the 8th of November, it was barely possible to get her to rally sufficiently for the operation. The patient was seen by Dr. Lee and Dr. Thomas, both of whom concurred in the advisability of the proposed operation for the removal of the tumor, which was quite movable and involved the entire body of the uterus. At the time of the operation, which was performed at 3 P. M. on the 24th of November, in the presence of Dr. C. C. Lee, Dr. T. Addis Emmet, Dr. W. M. Polk, and others, the tumor was found non-adherent; but the portion of the mass that served as a pedicle was so short that it was with the greatest difficulty that the clamp was applied and the pedicle sufficiently stretched to give room for operative procedure. The prominence of the tumor over the left ovary was so great that the latter was accidentally not included in the clamp. The mass was removed at about the internal os. Between the right Fallopian tube and the right ovary there was a small cyst of the broad ligament, the contents of which had not yet been discharged when the specimen was presented to the society. The entire mass weighed a little less than six pounds. Not more than two drachms of blood was lost during the operation, and none whatever escaped into the abdominal cavity. The patient came out in good condition from under ether, and shortly after the operation her symptoms were so good that there were fair hopes of recovery. At 8 P. M. she was comfortable—no nausea; the temperature was 100° F., pulse 94. The next morning (the 25th) the temperature was 101·5°, pulse 90; in the evening, twenty-eight hours after the operation, there were no symptoms of peritonitis. She felt very comfortable; temperature 101°, pulse 96. On the morning of the 27th, temperature 101°, pulse 100; in the evening, temperature 102°, pulse 101. On the morning of the 28th, temperature 102·5°, pulse 120; evening, temperature 103°, pulse 120. About four o'clock the next morning she began to vomit, for the first time, and had a free passage from the bowels of an offensive, dark material. It was impossible to control the vomiting, and two hours later she had a chill, rapidly sank, and died six hours after the commencement of these symptoms, which were also accompanied by tympanites and diminution of the amount of urine. The temperature at no time was higher than 103·5°. At the post-mortem examination perfect union of the wound was shown, and the upper portion of the pedicle was found adherent to it; but the lower angle of the wound, under the clamp, was in a sloughy state, and the pedicle was free at that point. This doubtless had given rise to septicæmia, which caused the death of the patient. Dr. Dawson attributed the sloughy state of this small portion of the wound, from which absorption of septic material had doubtless taken place, to the excessive traction which it had been necessary to make upon the pedicle, and the consequent great pressure of the clamp. Antiseptic precautions had been observed during the operation and subsequent dressing.

Dr. **Bache McE. Emmet**, who was present at the operation, also testified that the amount of hæmorrhage was very small indeed, and that he felt convinced that no blood had entered the peritoneal cavity.

Dr. T. G. **Thomas** believed, with Dr. Dawson, that the clamp was an objectionable instrument, and the only defense for its use was the want of a better method of accomplishing the purpose for which it was designed—namely, to compress the pedicle and control hæmorrhage in certain cases. In cases in which Dr. Thomas deemed it safe to do so, he removed the clamp after having made the pedicle as small as possible, and applied a ligature. He thought, however, he would have pursued Dr. Dawson's course in a similar case. His experience in this direction embraced ten cases, five of which resulted fatally and five in recovery. In one case the clamp was removed on the tenth or eleventh day, and, very unexpectedly, violent hæmorrhage took place, although the pedicle was fixed in the wound, and the wound had healed. He mentioned this to show that, when the clamp was removed, we should have some powerful hæmostatic means at hand; and also to show that the ligature in Dr. Dawson's case would have been very insecure.

Dr. W. T. **Lusk** asked whether, since a considerable portion of the uterus must necessarily be left in the abdominal cavity, the chances of recovery were sufficient to justify the operation. And whether, instead thereof, it would not have been better to perform Hegar's operation, and simply remove the ovaries.

Dr. **Dawson** said that question was taken into consideration in this case, but it was thought questionable whether an operation simply for the removal of the ovaries would be justifiable.

The **President** remarked that this question was discussed by the society about a year ago, when Dr. Mann narrated a case in which he removed the ovaries, leaving the fibroid behind, and in which death resulted from shock.

Dr. **Lusk** remarked that he referred to those cases in which, after an operation was begun, it was found the pedicle was extremely short, and the difficulties referred to by Dr. Dawson were encountered; and he asked whether it would not be better in such a case to abandon the proposed operation, and simply remove the ovaries.

Dr. THOMAS said that the difficulties referred to by Dr. Lusk with regard to the application of the clamp were very liable to arise; that he had in some cases been obliged to apply it around the neck of the uterus at the os internum; and he thought the question as to the advisability of abandoning the operation and simply removing the ovaries was one which should be decided by the operator as he proceeded with the operation. It must be remembered, however, that the removal of the ovaries under these circumstances was not by any means so easy as in Battey's operation, and the results were far from being as promising. Hegar, who had had wonderful success with Battey's operation, could not show the same results with this.

The PRESIDENT remarked that this question arose in a consultation in which he was called, and it was then decided that, if, in proceeding with the operation, the fibroid of the uterus were found generally adherent, it would be safer to leave the mass together with the ovaries rather than attempt to remove the latter alone.

THOMAS'S GYNÆCOLOGICAL TABLE.—Dr. THOMAS showed his gynæcological table, which he had been perfecting during the last four years. The principle involved consisted in the inclined position in which the patient could be placed when in Sims's posture by raising the dorsal edge of the table, thus throwing the abdominal viscera forward and toward the thorax. In operations under anæsthesia the lower extremities were held firmly fixed by straps attached to foot extension-pieces. The inclined plane on which the patient lay and the large cylindrical center-piece against which the abdomen rested made it easy to retain the body in an almost perfectly immovable position, which enabled the operator to perform the most delicate operations with very little assistance. The center-piece, which one might suppose would prevent the abdominal viscera from falling forward, did not do so, in fact, as it pressed rather against the pubic arch than upon the abdominal wall.

Dr. H. J. GARRIGUES then read a paper on THE DIAGNOSIS OF OVARIAN CYSTS BY MEANS OF THE CONTENTS, which, at his request, he was allowed to withhold from the transactions of the society.

HENRY J. GARRIGUES, M. D.,
B. F. DAWSON, M. D.,
FRANK P. FOSTER, M. D., *ex-officio*,
Committee on Publication.

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Letters to the Editor.

VITALIZED PHOSPHITES.

664 and 666 SIXTH AVENUE, NEW YORK, *February* 10, 1882.

To the Editor of the New York Medical Journal:

SIR: We believe it is of greater importance to correct an error than to publish a new fact.

The "American Medical Weekly," of January 7, 1882, has an article on cereal foods, written by Dr. Ephraim Cutter, who states that he has been engaged eight months in making microscopic examinations of twenty-eight articles of cereal food. Although the author of a compiled work on the microscope, he was unable to make the necessary illustrations, and, therefore, called in help to complete this arduous task. The single mountain in labor brought forth a mouse, but these three laboring doctors, in eight months, have brought forth some microscopic drawings that will produce hearty laughter from any one who has ever used a microscope. It is not only that they are perfect caricatures of the things they are intended to represent, but they lead to error.

Dr. Cutter says: "The microscope is an infallible detecter of fraudulent claims in regard to cereal foods." No skillful microscopist will make so bold and unqualified an assertion. One who uses the microscope skillfully knows how uncertain are the results reached by unskillful manipulators. There are as many truthless microscopists as unskillful surgeons and chemists, and their results, as in the present instance, are dangerous to the cause of science.

The first six of these drawings, made to order for Dr. Cutter, and also the eighth, are copies—coarse, rough, and untrue copies—from other authors, to whom no credit is given, except in the case of No. 4, which is a fancy sketch which the author would never recognize, so utterly unlike is it to the original. In most of the other drawings the microscopist has not separated adherent particles sufficiently to distinctly see what he was looking at; they are consequently drawn by guess. Eight months spent by two such be-puffed microscopists making these few "sketches"! Why, an unpracticed hand should complete them in two weeks.

In some of these fancy drawings Dr. Cutter has given us rough, coarse sketches of the hexagonal cells of the starch granules, and points them out as the oblong gluten cells. Ignorance is bad enough, but what right has he to call other people "fraudulent"? In another page he gives a drawing—he says photographed—of some entire wheat-flour, without a single starch granule or gluten cell; there is absolutely nothing but some inner bran coat and some hairs. If he had acknowledged that this was a hand-drawing, with the starch purposely left out—but photographed! Photography does not yet do imagination work!

In another *sketch*—photographed—he gives us a view of some gluten cells from the oat, magnified 800 diameters, and to prove that they are from the oat he finds in the material a grain of oat with the surrounding husk; he gives us drawings of these, the grain whole and the husk (magnified 800 diameters), and they are, when thus magnified, two inches in length. An oat-grain is certainly one eighth of an inch in length, and generally one fourth inch or more. If this is magnified 800 times we should have this grain 100 inches in length. As represented by Dr. Cutter, it is two inches—photographed!

At any time when he is at a loss to define what he sees, or rather what he draws, he designates it as "ill-defined, dark, granular masses, *resembling gluten*, though such an opinion is not warranted"; that is, he thinks he sees something; his skill does not warrant him in saying what it is; he does not want it to be gluten, therefore, though it "resembles gluten," he acknowledges it and denies it in the same breath. What a scientific teacher!

Even in the last two (photographed!) drawings of Bermuda arrow-root and potato-starch it is difficult to distinguish which is which. A novice who views these grains with the microscope for the first time can most readily distinguish them, but Dr. Cutter's *sketches* are nebulæ to an expert.

He speaks of many of these cereal foods as "the spurious, the worthless, the fraudulent," and he has had the assurance to denounce, from his most imperfect microscopic examinations alone, without any other test, articles that have long been before the profession, and have received the indorsement and approval of both chemical and therapeutic investigators.

He says: "The microscope is an infallible detecter of fraudulent claims." A tyro in science knows that the microscope is but one of the many means of detecting compound substances. Where but one substance alone is sought to be isolated from a compound mixture, the microscope can tell but a part of the truth; minute, scrutinizing chemical, and often mechanical, investigations are also needed, and, with our imperfect skill, with all these means put together we are very often unable to arrive at any positive conclusion. It is only the arrogance of ignorance that accomplishes impossibilities.

The assumption made by Dr. Cutter is, that all farinaceous substances owe their nutritive value to the gluten they contain, and that all other portions of the grains are of little value—that with the microscope he can "infallibly detect" the amount of gluten present in any sample of such powdered substance. Let us see how far facts will bear him out in these assertions.

It is proved, beyond dispute, that the whole grain of wheat, excepting the outer bran, is necessary for our perfect nutrition; that, if the starch of the grain is washed away, the grain ceases to be fully nutritious; it is robbed of its fat-forming and heat-giving properties, and it is as much starvation to be robbed of that nutritive portion as to be deprived of the muscle-forming properties. One may live longer on gluten than on starch, but with either alone starvation ensues.

In Fig. 7 he says that three quarters of the gluten is removed in making flour; under his microscope not a single whole gluten cell is visible, and yet, when flour, which he thus condemns, and of which the microscope is "an infallible detecter," is washed under flowing water, and the starch cells are washed away, there is a large tenacious mass left behind, which other people call gluten. The starch manufacturers make starch from flour, and they have had great trouble to dispose of their refuse gluten. And yet these flours, under the microscope, do not show unbroken gluten cells. Millers, in grinding wheat, leave but little of the gluten adherent to the inner bran coat. It is ground so fine that the cells are ruptured, and are not visible as unbroken gluten cells under the microscope; and yet Dr. Cutter calls some manufacturers of cereal foods "fraudulent," because he can not find large unbroken gluten cells. Many of the foods which he mentions are cooked, others partially cooked, all ground very fine and sifted. How could unbroken gluten cells exist under such circumstances?

We wish particularly to refer to "Fig. 18—Crosby's Brain and Nerve Food, Vitalized Phosphites." He says there is in the specimen he examined "a large mass of starch obscuring the underlying starch, so large in some specimens as to occupy the whole field"; in other words, his manipulation has been so awkward that he has been unable to separate the mass for examination. Any one even ordinarily skilled in microscopy would separate the "underlying masses" so that everything could be distinctly examined. "Obscured underlying masses" do not amount to microscopic examination; such masses, if obscured, can readily be made distinctly visible, and to call such masses "underlying starch" is to guess at a conclusion, not see it.

He says, again: "B—ill-defined, dark, granular mass, resembling gluten, though such an opinion is not warranted." If, under the microscope, a mass is ill defined, it is the province of the microscopist to so dissect it that it may become well defined; if ill defined, how can he give a description of it? Only by guess. A thing that is imperfectly seen can hardly be described by one who is truthful. In science we want facts, not "ill-defined" conjectures. That this was a mere guess in this instance is proved by "resembling gluten, though such an opinion is not warranted." In other words, he had made up his mind to find fault, and therefore no seeming goodness could be granted by him.

He next says: "D—apparently cooked animal substance; there are no characteristic gluten cells, no nerve fiber, no axis-cylinder fiber, no ganglion, nor multipolar cell." Had he read the pamphlet—directed to the profession—accompanying every package of Vitalized Phosphites, he would have seen that there is no claim that the whole brain of the ox enters into the composition of this substance; it is the grand alkaloid hypophosphite, extracted from the brain, that exists in its composition, and the whole formula is given in the pamphlet which he was too self-sufficient to study. When an ox brain is treated with boiling alcohol, and the alcohol thoroughly filtered, how could there exist "nerve fibers" or "ganglion cells," and in cooked animal substance who, but he, could expect to find "characteristic gluten cells?" The article he abuses is called Vitalized Phosphites, because it contains the phosphoid elements as they exist in the brain of the ox and the germ of the wheat. It is not stated, on any line of the pamphlet, that the whole brain of the ox is mingled with the substance, and if, in eight months, with the material and a full analysis before him, and a pamphlet giving the composition, he is so averse to study that he refuses to peruse it, of what value to any one are his *investigations?*

He has not studied the formula which is on every bottle, or he would not class this among cereal foods. Who ever heard of cereal foods being given by the half teaspoonful, the dose here recommended? Because it is called a brain and nerve food—that is, a special food to the brain, containing the hypophosphites in the same condition as they exist in the brain—he classes it with cereal foods that are taken by the pound, not by the half teaspoonful. Had he properly studied the works of Koehler, Strecker, Baeyer, Thudichum, and others who have labored to give us the chemical constituents of the brain, he would have learned the difference between phosphoid compounds existing in the brain and "nerve fiber."

The Vitalized Phosphites were first made by the request of the profession; they have been before them for ten years; they are no secret remedy; the intelligent physician reads on the formula exactly what he is using. Thousands, yes, tens of thousands, of the most intelligent physicians, both here and in Europe, have used Vitalized Phosphites in their practice, and they continue its use because it does not disappoint them. Dr. Cutter has called it "fraudulent" only because, with his imperfect knowledge, he did not find, what we do not claim to be there, unbroken gluten cells; he made no other examination.

Had Dr. Cutter written a fairly scientific article, had he displayed a single attribute of fairness or knowledge, we would not complain, but would answer his article in as scientific a way as he had written; but, when he writes a sensational article, we must answer him as he deserves. He calls us "the worthless, the spurious, the fraudulent." We are truly thankful that he did not praise us.

Dr. E. S. Gaillard, the editor of the "Weekly," states that of this special number he has sent out 60,000 copies, in the hope of getting subscribers. When Dr Gaillard was written to, and asked for space in his journal to answer this attack, he positively refused to allow any answer. Had this number of the

"Weekly" been sent to its subscribers only, we should not have thought it worth while to take any notice of it, but it is said to have been sent out to 60,000 persons; it therefore seems proper to put the matter right before the profession.

With many thanks for your kindness, Mr. Editor, in granting our request for space in your journal, we remain yours, respectfully, F. Crosby Co.

Reports on the Progress of Medicine.

MONTHLY REPORT ON OBSTETRICS AND GYNÆCOLOGY.

No. XIV.

By FRANK P. FOSTER, M. D.,
PHYSICIAN FOR DISEASES OF WOMEN TO THE OUT-PATIENT DEPARTMENT OF THE NEW YORK HOSPITAL.

Obstetrics.

1. Jastreban.—On the normal and pathological anatomy of the ganglion cervicale uteri. [Obstet. Soc. of London.] "Brit. Med. Jour.," Jan. 7, 1882.
2. Waugh, W. F.—Leucorrhœa of pregnancy. "Med. and Surg. Reporter," Jan. 7, 1882.
3. Brinton, W.—Abortion with retained placenta. "Indep. Pract.," Dec., 1881.
4. Gannett, W. W.—A case of criminal abortion resulting in death from air-embolism. "Boston Med. and Surg. Jour.," Jan. 12, 1882.
5. Neville, W. C.—Physical examination of the abdomen in labor patients. "Dublin Jour. of Med. Sci.," Oct., 1881.
6. Ciccone, V.—Intorno ad alcuni accidenti morbosi della placenta. "Gazz. Med. Ital., Prov. Venete," Dec. 24, 1881.
7. Cantacuzène.—Note pour servir à l'histoire clinique des présentations de l'extrémité pelvienne. "Union Méd.," Dec. 31, 1881.
8. Studley, W. H.—Mechanism of forceps labor and the principles of forceps construction. "Am. Jour. of the Med. Sci.," Jan., 1882.
9. Maughs, *et al.*—Tarnier's *vs.* Hodge's forceps. [St. Louis Obstet. and Gynæc. Soc.] "St. Louis Courier of Med.," Jan., 1882.
10. Macvie, S.—Perineal curve axis-traction forceps. "Brit. Med. Jour.," Jan. 7, 1882.
11. Poullet.—Forceps souple à tractions indépendantes. "Lyon Méd.," Dec. 25, 1881.
12. Harrison, J. R.—A new pelvimeter. "Miss. Valley Med. Monthly," Dec., 1881.
13. Cuzzi, A.—Forcipe e rivolgimento nel bacino ovalare-obliquo. Nota sperimentale. "Giorn. Internaz. delle Sci. Med.," iii, 9, 1881.
14. Morisani.—De la symphyséotomie. "Ann. de Gynéc.," Dec., 1881.
15. Herman, G. E.—Ascites in the fœtus, obstructing delivery. "Med. Times and Gaz.," Dec. 24, 1881.
16. Rawitzki, M.—Erwiderung auf die "kritischen Bemerkungen" des Herrn Dr. med. et phil. Kotelmann (dieses Archiv, Bd. 84, Heft 1) zu dem Aufsatz "Ueber die Lehre vom Kaiserschnitt im Thalmud" (dieses Archiv, Bd. 80, Heft 3). "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," lxxxvi, 2, 1881.

17. **Frank.**—Beitrag zur Lehre von der Sectio cæsarea. "Centralbl. f. Gynäk.," Dec. 10, 1881.
18. **Hofmeier**, M.—Zur Aetiologie der Uterusrupturen. *Ibid.*, Dec. 24, 1881.
19. **Emmet**, B. McE.—Case of extra-uterine fœtation. "N. Y. Med. Jour. and Obstet. Rev.," Jan., 1882.
20. **Cox**, J. C.—Case of extra-uterine fœtation. "Australas. Med. Gaz.," Nov., 1881.
21. **Davidson**, L. G.—Case of tubular [*sic*] pregnancy. *Ibid.*
22. **Barnes**, E. G.—On concealed accidental hæmorrhage, with cases. "Lancet," Dec. 17, 1881.
23. **Barnes.**—Sur le traitement de l'hémorrhagie après l'accouchement. "Ann. de Gynéc.," Dec., 1881.
24. **Brechin**, W. P.—A case of death from exhaustion following excessive hæmorrhage during labor. "Boston Med. and Surg. Jour.," Dec. 29, 1881.
25. **Emerson**, J. H.—Some effects of an overloaded colon in the puerperal state. "N. Y. Med. Jour. and Obstet. Rev.," Jan., 1882.
26. **Schauffler**, E. W.—Malarial fever in puerperal women. "St. Louis Courier of Med.," Jan., 1882.
27. **Forster.**—The necessity of using the long nozzle in making intra-uterine injections after confinement. [Obstet. Soc. of Boston.] "Boston Med. and Surg. Jour.," Jan. 5, 1882.
28. **Lebedeff**, A.—Ueber die Entstehung der Anencephalie und Spina bifida bei Vögeln und Menschen. "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," lxxxvi, 2, 1881.
29. **Mayer**, E.—Acrania monsters, with report of a case. "Am. Jour. of the Med. Sci.," Jan., 1882.
30. **Stedman**, J.—A case of united children, or double monstrosity. "Boston Med. and Surg. Jour.," Dec. 22, 1881.
31. **Plant**, W. T.—Tetanus infantum. "Obstet. Gaz.," Dec., 1881.

5. Considering the narrow limits within which he writes, Dr. Neville gives an admirable summary of the practical advantages of *examination of the abdomen during pregnancy and labor*. He thinks that in diagnosticating the position of the fœtus less attention has been given to auscultation than the general accuracy of its results entitles it to. In breech presentations, he remarks, the fœtal heart-sounds are heard most clearly high up in the abdomen, slightly to the left or right side of the umbilicus, according to the position of the child. In transverse presentations they are usually to be heard lower down, above the symphysis, or in one or other of the iliac regions. The distinction that these sounds are best conveyed across the abdomen in shoulder or arm presentations might possibly hold good for dorso-anterior positions, but could not, he thinks, prove of much practical usefulness in any case. The auscultatory signs of cross-births do not appear to him to be, of themselves, satisfactory, and, indeed, auscultation gives more reliable information of the position than of the presentation. He has never been able to verify the statement that the uterine souffle may be heard even after the expulsion of the placenta. While perhaps not always a certain, it is a generally reliable guide to the situation of the placenta. Although he has often remarked its fluctuating intensity, as heard over a certain area, he has never been satisfied that it completely altered its position. In six out of eight cases of placenta prævia in which he noted the point, it was heard low down, over the symphysis or over Poupart's ligament. In one it was not audible anywhere, and in another it was situated toward the upper limit of the left iliac region. Its most common situation, he adds, high up on one side of the uterus, certainly corresponds to what experience has led many observers to regard as the most usual site of placental attachment. He doubts if the funic souffle is to be heard in so large a proportion of cases (fifteen per cent.) as some continental authors state. He suggests that it might point in favor of an abdomino-anterior position.

7. The notable point in M. Cantacuzène's article on *breech presentations* is that he dissents from M. Budin's view that a presentation can not be considered definitive until engagement has taken place. Exceptionally, the breech may engage before the beginning of labor, but, whether engagement takes

place or not, we are justified in calling such a presentation "frank" if it seems to be the result of what Pajot and Pinard have described as "accommodation." The author gives a case that appears to justify his position.

9. Dr. Maughs gave his views of *the relative merits of Hodge's and Tarnier's obstetric forceps* at a recent meeting of the St. Louis Obstetrical and Gynæcological Society. After a brief but exceedingly clear description of Tarnier's instrument, the speaker maintained that, with the exception of a tendency to slip, Tarnier's objections to ordinary forceps did not apply to Hodge's. It would allow the head to rotate, and it admitted of traction being made in coincidence with the course of the pelvic canal. Possibly a woman might be delivered with Tarnier's forceps who could not be delivered with Hodge's, but not more than one in a hundred. Hodge's instrument was better to use, as it was less complicated. He doubted very much if a woman who could not be delivered with it ought to be delivered with forceps at all. The greatest objection to Tarnier's forceps was that the head was held in it as in a vise—the grasp was not relaxed until the head was extracted. [The reason that Tarnier's forceps does not slip lies, not in the shape of the blades or in the continuous compression, but in the very fact that constitutes its main excellence—namely, that the traction must necessarily be in the direction of the blades. No good forceps will slip if properly applied and carefully managed. The mere fact of its slipping is proof positive that (assuming it to have grasped the head properly) the traction was not in a line with the blades. We venture to say that Tarnier's forceps would slip as often as any other equally suitable instrument, were the "guide" handles to be used for making traction, notwithstanding the constant compression with the screw. A word about this terrible screw-compression. Used as it should be, and as Tarnier directs, the instrument makes practically no compression at all; the screw merely guards against divergence of the blades when traction is made—an unyielding girdle is not necessarily compressive. With any other forceps, no man can be positively certain that he is pulling in a line with the blades; therefore he is sometimes forced to resort to undue compression, in order to keep the instrument from slipping. It follows that there is actually less danger of compressing the head to a dangerous degree with Tarnier's than with any other forceps.]

17. Dr. Frank describes *a new method of performing the Cæsarean operation.* He thinks we should rather seek to improve the old operation than take refuge in substitutes, such as Porro's. The only advantage of the latter lies in the diminished hæmorrhage; on the whole, the mortality after it is as great as after the Cæsarean section. Drainage is the great desideratum, and a great portion of the article is in praise of Bardenheuer's system of drainage. The procedure is incapable of being carried out, however, in the Cæsarean operation as usually performed. The author's peculiar mode of operating is intended, therefore, to make the uterine wound practically extra-peritoneal. The method consists in opening the uterus low down, and in making a pocket around the incision by bringing the two round ligaments together with sutures of Czerny's silk. A large drainage tube passes through the lower portion of the abdominal and uterine wounds, and above the tube these two incisions are closed with sutures. The pocket is drained by means of a small tube passed through an opening into the vagina, just in front of the cervix. A third tube lies upon the uterine wound, and extends nearly to the top of the pocket. If the size of the fœtus makes it necessary to extend the uterine incision farther upward than usual, or if the round ligaments can not be approximated through enough of their length without too much tension, exudation of lymph must be trusted to to a certain extent to complete the vault of the pocket. A distended bladder will obliterate it; therefore that organ must be kept empty, and the author describes a special form of catheter that he has devised for the purpose. A case is given in which the Cæsarean operation was performed after this manner upon a woman who was hopelessly burned at full term, and evidently had but a few hours to live. The child was alive, but growing weaker, and its extraction *per vias naturales* was found impracticable. The mother survived the operation ten hours, and at the autopsy not a drop of blood was found in the general peritoneal cavity.

18. In this contribution to *the eti-*

ology of rupture of the uterus Dr. Hofmeier remarks that the modern doctrine is sometimes at fault, and that then we can only fall back upon the causes mentioned by the older writers. He gives a case in point, in which all the essentials of Bandl's theory were lacking, for there was no narrowing of the pelvis, no strong pains, no great distension of the soft parts, etc. Neither did microscopic examination of the uterus reveal any cause for the rupture. The rent was 14 centimetres in length, extending upward from the middle of the cervix.

23. Dr. Barnes's article on *post-partum hæmorrhage* deals chiefly with the causes and treatment of the accident. We select for abstract that portion of it that relates to precautions against the dangers attending intra-uterine injections of perchloride of iron. To diminish the shock, the manœuvres should be as gentle as possible. The uterus should first be cleared of blood and clots with a stream of hot water; then, the organ being well compressed by the hand of an assistant, to reduce its volume and the extent of its inner surface, about a gill of the iron solution, at a temperature of about 80° F., should be slowly injected, taking care to secure it a free outlet by keeping the cervical canal well open. To lessen the danger of air entering the veins, in addition to compressing the uterus, all air should be expelled from the syringe before the latter is employed, and the nozzle should be inserted into the uterus very gently, taking special care as to holding the cervix open with the hand. The measures thus far mentioned are also the most trustworthy in guarding against a portion of the liquid being forced through the Fallopian tubes, as well as against the iron gaining entrance into the circulation and thus causing venous and cardiac thrombosis. To prevent embolism from decomposed clots in the uterine sinuses, besides the above-mentioned precautions, firm compression of the uterus should be maintained with a bandage, and ergotin should be injected subcutaneously soon after labor; quinine and ergot should be given, by the mouth or hypodermically, three times a day for at least fifteen days (a measure that the author has long made use of in all cases, whether iron was used or not), and the patient's nutrition should be kept up with the utmost care. To prevent septicæmia, from the decomposition of clots in the uterine vessels or in the cavity of the organ, the latter should be cleansed once or twice a day, after the first day, with carbolized water. For applying the iron solution the author has lately used large hard-rubber tubes, with large openings at the end. Pieces of sponge wet with the solution are stuffed into this end, and when the apparatus is in place the solution is squeezed out with a piston, thus causing such gentle contact of the liquid with the uterine surface that all shock is avoided. The injection, however, is the most convenient, and the author thinks a weak current of the solution the most efficient.

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8. The interest of Dr. Engelmann's paper on *clitoridectomy* [printed "cliterodectomy," by the way, all through the article] centers in a case in which the operation was performed for the relief of reflex symptoms referable to genital irritation. The clitoris, together with its prepuce and the nymphæ, was enlarged, and the reflex symptoms could always be brought on by touching its point with a probe. Some urethral caruncles were first removed, then the clitoris and nymphæ, and finally a crop of caruncles that afterward appeared in the urethra. After the second operation [which followed so close upon the first that it is difficult to see what share in the patient's improvement should be accorded to each] the prepuce sloughed and a hæmorrhage took place that well nigh proved fatal. Marked amelioration of the symptoms followed the first and second operations, and subsequently the third, but in each instance it was only temporary, owing, the author thinks, to masturbation. Dr. Engelmann suggests that clitoridectomy has fallen into undeserved desuetude, although the late Mr. Baker Brown's enthusiasm in regard to it was unwarranted.

10. Dr. Godson prefaced his remarks on *dilatation of the cervical canal for spasmodic dysmenorrhœa and sterility,* at a recent meeting of the Obstetrical Society of London, by sketching the history of the method, introduced more than fifty years ago by Dr. Mackintosh, of Edinburgh, and lately advocated by Dr. Matthews Duncan. Out of ten patients suffering from dysmenorrhœa with sterility, treated by the author, five had become pregnant. The dysmenorrhœa was characterized by severe

colicky pains in the hypogastric and sacral regions, either before the flow or coincident with it. He preferred to drop the term "obstructive," as he knew of no evidence that there was want of patency of the cervical canal, and Duncan had passed a probe into the uterus at the height of the pain without meeting with obstruction. He believed that spasm of the uterine muscular tissue was enough of itself to give rise to the severe pain, without any obstruction. After giving brief notes of five cases, the author gave the following conclusions: 1. That the method was simpler and safer than any other proposed. 2. That the dilatation might be done safely at the physician's house. 3. That a very small amount of dilatation was necessary. 4. That it should be done a week or ten days after a menstrual period. 5. That it should be done, not on successive days, as hitherto recommended, but all at once; that the first bougie should be a small one, and that there should not be enough difference in size between the successive bougies to split the mucous membrane. 6. That pregnancy appeared to take place on account of the dilatation having cured the conditions on which the dysmenorrhœa depended. In none of the author's cases was there either stenosis or constriction of the canal by acute flexion. In one instance the relief of the dysmenorrhœa proved only temporary, and a cure was afterward effected with an intra-uterine stem. One patient was lost sight of; the three others (of the five whose sterility was not cured) were relieved of dysmenorrhœa. ═══ Dr. Graily Hewitt regarded dilatation as unnecessary in cases in which the uterus was unduly soft and pliable, but in long-standing cases it was of great assistance. He used a two-bladed dilator, acting like a glove-stretcher. ═══ Dr. Heywood Smith thought it best to have the uterine portion of the instruments straight, not curved as in the dilators shown. ═══ Dr. Routh did not see what advantage the method had over that by dilatation with laminaria tents, followed by the employment of an intra-uterine stem. An analogous plan had formerly been used at the Samaritan Hospital, but had been abandoned, proving not to be so free from danger as had been stated. The effect was transitory, unless pregnancy occurred very soon, and the pain induced was sometimes very great. In cases of flexion it was often difficult to pass even a bent sound, and the use of a straight dilator in such cases would be liable to set up inflammation.

12. Dr. Smythe states that he has failed signally in the use of *viburnum prunifolium as a preventive of abortion.* "With no other remedy or treatment," he says, "has such uniform failure occurred in a practice of more than forty-five years."

17. *Laroyenne's hydrophore for vaginal irrigation* consists of two long wire loops fastened at their free ends to a plate. After these loops are introduced into the vagina, a central tube, connected with a syringe, is passed through a hole in the center of the plate. As it advances, it spreads the wire loops, and thus dilates the vagina somewhat. The central tube delivers a stream at the end and a number of streams from several small openings in its sides. The advantage claimed is direct and continuous contact of the injection with every part of the vagina. [Deprived of its terminal opening it would doubtless prove safe, but metal is not the proper material for a plate to rest against the vulva in using hot water, for the skin is more sensitive to heat than the vaginal mucous membrane.]

24. Dr. Fenger reports a successful *removal of the uterus by the vaginal operation.* The case was one of carcinoma of the cervix and the lower half of the body of the uterus, of over eight months' standing, in a woman forty years old. No infiltration of the adjacent structures was discovered. The author considers the vaginal operation preferable to the abdominal whenever it can be done. He thinks the ligature *en masse*, as recommended by Schröder, Billroth, and Mikulicz, is the easiest and safest method of controlling the hæmorrhage; but, unlike those authors, he prefers to close the peritoneal wound carefully throughout its whole extent. He describes a modified form of Mikulicz's irrigator, and considers continuous irrigation superior to the use of drainage tubes, especially if the bladder or the rectum has been wounded.

29. [Mr. Tait's paper may conveniently be included with the literature of *Battey's operation*, although he makes an express distinction between mere removal of the ovaries and their removal together with more or less of the Fallopian tubes. Moreover, as regards the effect of the measure in controlling uterine hæmorrhages that have proved intractable by other means, he points out that in some cases a moderate degree of cystic disease of the ovary may give rise to such hæmorrhages, without the existence of any uterine tumor at all.] He reports thirty-one cases in which removal of "the uterine appendages" was performed for hæmorrhage. Four of them ended fatally. In twenty-six the hæmorrhage was either wholly done away with or quite decidedly reduced. In the remaining case, which afterward proved to be one of malignant disease, no benefit was derived. As on former occasions, Mr. Tait again ardently advocates the operation, holding it to be quite as justifiable as any of the major operations in surgery, and its final results as encouraging more frequent resort to it. He thinks it highly probable that mere removal of the ovaries does not suffice to arrest menstruation, but that removal of both ovaries and tubes does arrest it at once. This cessation of menstruation seemed in a few of the author's cases to lead to atrophy of the tumors. Not only menstruation, but sexual feeling also, he maintains, may remain unaffected by removal of the ovaries.

QUARTERLY REPORT ON GENERAL MEDICINE.

No. IX.

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3. *Tuberculosis* is for Rindfleisch a disease which was once directly communicable from one person to another, but which is so no longer, owing to the hereditary transmission of an acquired immunity. In other words, the whole human race was once so universally affected with this disease that they (and their descendants) were thoroughly "saturated" with the tuberculous virus, and so were proof against the effects of re-inoculation or of contagion. Unfortunately, the descendants are still capable of developing the disease, when an inherited tendency for the affection is combined with a diminution in the power of resistance to morbid influences. The author believes that leprosy has passed through a similar evolution from a contagious disease, in the time of Christ, to a non-contagious disease, as it is seen at the present day. The tuberculous process may be diffused throughout the entire body, or may be confined to one or two organs, or may be developed in connection with inflammatory processes in a single organ, or may show itself as a localized inflammation with little or no deposition of tubercle (scrofulous inflammation). The tuberculous exudation possesses several peculiarities. One is the presence of characteristic large round cells, possessing one or more vesicular nuclei, and a finely-granular protoplasm. These are regarded by Rindfleisch as epithelioid in character, while the giant cells he believes to be distinctly epithelial. Another peculiarity of the tuberculous exudation is found in the presence of masses of a coarsely granular albuminous substance, which quite possibly represent accumulations of micrococci in the condition of zooglœa. The final distinguishing feature of a tuberculous mass, i. e., its tendency to caseous degeneration, is not, in the author's view, to be ascribed to any specific action of the virus, but merely to the effect of an arrest of nutrition. [Grawitz has suggested that the mildness of the smallpox at the present day may be due to

the transmission of an acquired immunity such as, according to Rindfleisch, holds for tuberculosis; and it has been imagined that, in a similar fashion, syphilis may yet die out as an infectious disease. But, in regard to tuberculosis, it seems curious that hereditary influence should produce, on the one hand, a general immunity against, and, on the other, a particular predisposition to, the disease.]

4. Delaunay, after recalling the existence of *minute organisms* (bacteria, micrococci) *in the interior of the body in health*, and their recently-proved participation in the performance of some of the normal functions—digestion, for instance—suggests that the vital state may be regarded as the balance struck between two opposing forces, the constructive belonging to the tissues themselves, and the destructive dependent upon the ever-present bacteria; and supposes that a predominance of the latter force constitutes the essence of disease.

6, 7, 8. In both the first two cases here presented an *excessively high temerature* was indicated by the thermometer, and in both the disagreement between the axillary temperature and that taken in the mouth or rectum, the variations of the former, according as the patient was observed or not, and even according to the will of the patient, and, above all, the want of correspondence between the height of the temperature and the gravity of the symptoms, combined to excite a suspicion of malingering. In Mackenzie's case, in which the temperature rose at times to nearly 130° F., the patient confessed to having practiced deception, the agents employed by her being the poultices and hot bottles which had been applied for another purpose. In Mahomed's case the method used was never revealed, but it was supposed that the patient accomplished her object by rubbing the thermometer between the finger and thumb, and strongly pressing the bulb. In this way Mahomed showed that the index could be driven to the top of the instrument. ═══ In Little's case there is a strong suspicion that the high temperature registered (125° and upward) was likewise due to malicious interference with the instrument by the patient, although the doctor himself does not incline to this view.

9. Eckstein, after discussing the various theories which have been proposed for the explanation of the occurrence of *albuminuria in the febrile state* (congestion of the kidneys with increase of blood-pressure, diminution of blood-pressure with resulting increased permeability of the vessel walls, increased permeability due to a relaxed condition of the vascular coats, increased activity of filtration, altered composition of the blood, with the production of a more diffusible variety of albumen), decides that, in every case, there is a change in the secreting epithelium of the kidneys, probably inflammatory in its nature, and due to the local action of some infecting material. The infecting material he is inclined to regard as organized (bacteria, micrococci). The conditions in which albuminuria is most likely to occur are typhoid fever (one third of the cases), typhus, relapsing fever, intermittent fever (during the paroxysms), the exanthemata, especially scarlet fever, erysipelas, diphtheria, pyæmia, pneumonia, and rheumatism. The acute nephritis which may occur as a complication or a sequela of any of these diseases, is not to be regarded as a specific result of the individual disorder, but as a more advanced grade of the above-described parenchymatous lesion excited by the febrile process.

10. Dukes has carefully observed the duration of *the stage of incubation in various infectious diseases.* In 15 cases of scarlatina in which the length of this period could be determined, it was found to vary from 1 to 9 days, most cases occupying 2, 3, or 4 days. In 15 cases of varicella the duration was 13 to 19 days, the average being 15 or 16 days. In 42 cases of mumps the stage of incubation lasted on an average 19 days, but in some cases fell to 14, in others rose to 25 days. In 12 cases in which orchitis supervened, it occurred in most instances at an interval of 7 or 8 days after the inception of the mumps, although in one case it occurred on the second day. In 25 cases of Rötheln, the duration of incubation was from 12 to 22 days, most cases taking about 16 days to develop.

11. *The complications of scarlatina* are arranged by Gerne under five subdivisions. The first includes the pharyngeal complications, diphtheritic, diphtheroid, and gangrenous, which must not be confounded with the initial pharyngitis forming one of the regular symptoms of the disease. The second comprises the glandular enlargements, affecting chiefly the submaxillary, sub-sterno-mastoid, and supra-clavicular glands. These are either simple or virulent in character, the latter variety, denominated the scarlatinal bubo, being distinguished from the former by the œdematous infiltration of the surrounding cellular tissue. Scarlatinal rheumatism, under which the author groups both the arthritic and the cardiac complications, is an evidence, according to him, of the tendency of the disease to extend to serous membranes in all parts of the body. Authorities differ as to the dependence of this class of affections upon scarlatina, many claiming that they occur only as the result of a rheumatic diathesis which was already present before the scarlatina existed. In the treatment of this complication salicylic acid must be avoided, on account of its tendency to excite renal irritation. The fourth class of complications includes albuminuria and anasarca dependent either upon pyrexial congestion of the kidney in the early stages of the disease, or, if appearing later, upon structural changes in that organ.

12. Collier records a remarkable case of *typhoid fever* in which, after defervescence had appeared, successive hæmorrhages occurred from the different mucous and cutaneous surfaces, the bleeding, which was quite profuse, taking place first from the bowel, then affecting the genito-urinary tract, then leaving this locality to reappear as an alternating hæmoptysis and epistaxis, and finally making its appearance in petechial spots beneath the skin and as a bloody sweat at the roots of the hair. In spite of this threatening complication, a cure was effected by the free use of quinine, iron, and stimulants.

13. The chief points made by Da Costa in the course of a clinical lecture upon *typhoid fever* are, first, the gravity of the prognosis when a slow pulse is associated with a high temperature; second, the fact that a complicating inflammation of the parotid gland may be aborted by the continuous local application of ice; and third, the remark that the coincidence in one case of milk leg, recurrent epistaxis, petechiæ, and repeated chills with an abnormal temperature curve, proved the existence in this case of a septic condition of the blood.

15. Roth considers that all *morbid sweating* has a "critical" tendency, insomuch as it is always to be regarded as an effort of nature to compensate for some morbid condition of the blood or organs by eliminating unnecessary or noxious products from the body. If, however, the tendency is excessive, as in the case of general colliquative sweats, the benefits accruing from the eliminative process are overbalanced by the bad effects of the systemic exhaustion, and hence the waste must be checked. This is best accomplished, according to Roth, by the boletus laricis (agaric), combined, if necessary, with a little opium, to restrain any tendency to diarrhœa. Atropine he has found less speedy in its action and more disagreeable in its after-effects. General colliquative sweats occur not only in wasting diseases, but also in the various complications of the puerperal state and in other acute affections. *Local sweats*, since they possess the same eliminative efficacy without the dangers attendant upon general sweating, are by no means to be arrested; and, if suppressed, they are to be brought back by warm mustard baths, stimulating ointments, and careful protection of the part from cold.

[Wolfenden, "Med. Times and Gaz.," Oct. 8, 1881, also gives agaric high praise for its anti-sudorific qualities, having used it with benefit in forty-eight cases.]

16. Harkin believes, from clinical observation, that *rheumatism* is essentially and primarily a cardiac lesion, the articular symptoms being secondary both in importance and in order of development. He bases this view on the results of treatment in thirteen cases, in all of which the patients recovered speedily on the application of a blister to the precordial region.

18. The means recommended in this report for preventing the spread of *diphtheria* in hospitals consist chiefly in the liberal use of carbolic acid throughout the wards, the most rigid cleanliness with frequent ablutions of the person and clothes of the attendants, and the avoidance of overwork and other exhausting influences on the part of the physicians and nurses. In addition, respirators may be used for all who come into contact with the sick, and for the patients themselves may be used a cot so constructed that the breath and exhalations must pass through a lamp-flame before they can reach the outsiders.

21. Crudeli believes that his own researches, with those of Klebs and the subsequent investigations of Marchiafara and others, have proved that the development of *malaria* is effected by a specific micro-organism, the bacillus malariæ. This bacillus, although often found in marshes and in association with decaying vegetable matter, does not require these adjuncts for its perfect growth; and, in fact, many of the malarious districts of Italy are found where there is no standing water and where the soil contains very little vegetable material. The only requisites for the development of the micro-organism are a constant moderate humidity of the soil, a free access of air, and a temperature of 20° C. [68° F.]. If any of these conditions is vitiated, the growth of the micro-organism, and, consequently, the development of the disease, are prevented. Now, in the Roman Campagna the humidity of the soil is kept up by constant percolation from the lakes on the surrounding hills. Hence a system of drainage of these lakes would remove malaria from the Campagna by cutting off its supply of surface-water. It is well known that in ancient times this region was healthy and inhabited; and an explanation of this former immunity is found in the system of drains which has been unearthed throughout this whole section, and which probably dates back to many centuries B. C. An interesting account of these drains, with plans and sections, is given by the author.

31. *Spinal irritation*, as defined by Jewell, is a nutritive lesion of the cord due to a "loss of balance between waste and repair." It usually affects only special regions of the cord, being especially marked in the lumbar and brachial enlargement and in the cervical region. It may be produced either by over-action of the spinal center, as when the nervous force has been constantly exerted in exciting various groups of muscles into activity, or to over-excitation, when the cord receives a continuous series of stimuli from some diseased and painful organ, pelvic or abdominal. As an instance of the latter form may be cited the inter-scapular pain and irritation which are seen in cases of gastric disease. The chief symptoms are fatigue, pain, and hyperalgesia in the nerves running to the affected region of the spine, and especially marked in those whose course to the spine is shortest. The chief points of treatment are to procure rest, to enhance nutrition, and to remove any causal irritative disease. For direct treatment the author uses small doses of opium or morphine with belladonna, a combination which, if properly administered, is not, he thinks, likely to induce the opium habit; and he likewise recommends electricity and massage.

34. Cantilena observed a case of hemiplegia in the adult which he diagnosticated as *polio-myelitis anterior subacuta* on the following grounds: It was not a peripheral paralysis, on account of the diversity of muscles affected, and on account of the involvement of the diaphragm. It was not due to a cerebral lesion, because the paralysis was gradual in appearance and affected the muscles of the thorax, and because the reaction of the muscles to electricity was diminished. It was, therefore, excited by a systematic lesion of the cord, and that this lesion was the same as that present in infantile spinal paralysis was inferred from the initial febrile disturbance, the gradual onset of the paralysis, its partial distribution, and the absence of any involvement of the sphincters, combined with the atrophy of the affected muscles and the presence of the "reaction of degeneration."

36. In a typical case of *pseudo-hypertrophic paralysis*, Drummond found the following changes in the cord: Spots of disintegration were found scattered throughout all parts of the cord, which he examined and located in the network of fibers upon the "left lateral portion" of the gray substance. In the lumbar enlargement, this disintegration had proceeded so far as to produce a large cavity; and this cavity becoming distended with serum, a cystic tumor was thus formed projecting from the left lateral portion of the enlargement. The membranes were thickened and adherent at this part of the cord. Drummond says that, while most observers have failed to find any changes in the cord in this disease, Gowers, in one instance, discovered evidences of disintegration similar to those described above. [The absence of spinal lesions in many cases of this disease has induced some observers to make a division of pseudo-hypertrophic paralysis into two separate affections, in one of which the muscular degeneration is due to a trophic disturbance arising from changes in the cord, in the other to an idiopathic inflammatory process affecting the muscles themselves.]

37. 38. Chambers gives a successful case of *stretching of the sciatic nerve in locomotor ataxia*, the operation not only affording relief to the neuralgic pains, but also ameliorating the disturbances of co-ordination and the gastric symptoms. Since the sciatic pain was relieved on both sides, although only one nerve was stretched, the author does not agree with those who consider the benefits of the operation to be due to local changes in the nerve itself, such as would be effected by its release from compression, alterations in its circulation, etc. ═══ Leyden presented two cases of *locomotor ataxia* in which stretching of the sciatic nerve had been performed, and is persuaded that, as far as the essential symptoms are concerned, the patients were rendered worse instead of better. He does not think that the operation is a remedy for the fulgurating pains. He cites another case in which nerve stretching was shown at the autopsy to have produced considerable neuritis.

40. Poulet observed a case in which severe repeated attacks of dyspnœa occurred in a child, the symptoms resembling those of a very acute capillary bronchitis. The paroxysmal nature of the attacks, the rapidity with which they passed away, and the regularity with which they recurred, suggested a nervous origin for the affection; and neurotic remedies were tried, with entire success. The case was, therefore, regarded as *a neurosis of the pulmonary and gastric fibers of the pneumogastric nerve*, the laryngeal fibers not being affected. The acute congestion of the bronchi, which evidently existed along with the condition of nervous irritation, was looked upon as subsidiary to, and even dependent upon, the latter.

42. Nunn ascribes the symptoms of *seasickness* to a relaxed condition of the mesentery and abdominal viscera, inducing a vascular engorgement of these parts and a consequent anæmia of the brain and the cutaneous surface; and he suggests as a remedy the use of an abdominal belt with air cells which can be inflated at pleasure so as to produce equable and firm pressure, and act as a support for the congested organs.

43, 44, 45, 46. The chief morbid appearances, observed after death in cases of *hydrophobia*, are, according Ewart, meningeal congestion, with, in some instances, injection of the pons, medulla, and peripheral nerves. There have also been found accumulations of round cells in the circumvascular spaces of the cerebral vessels and in the vicinity of the nerve ganglia, these changes being especially marked in the neighborhood of the bulbar nuclei (respiratory, glosso-pharyngeal, and hypoglossal). This localization of the lesion is thought to explain the occurrence of the respiratory and pharyngeal spasm. The period of incubation varies between two days and many years; but, in the great majority of cases, lies between two weeks and three months. Since absorption probably takes place very rapidly after inoculation, delay in the development of the symptoms must be ascribed either to variation in the quantity of virus introduced, or to deficient susceptibility of the nervous centers at the time of inoculation. ═══ Ruxton gives a case of apparently genuine hydrophobia which was cured by moderate, repeated doses of the tincture of cannabis indica. ═══ In the seven cases of hydrophobia observed by Southam, the period of incubation varied between six weeks and eight months, and the duration of the disease from forty-nine to eighty-seven hours. Of the drugs employed in combating the symptoms of these cases, chloral seemed most efficient, both for prolonging life (and so gaining time for other medication) and for the alleviation of the spasms. Morphia was inferior to chloral in its palliative influence, and curare was absolutely without effect, even when given in almost toxic doses. Chloroform causes temporary, but not permanent, cessation of the spasms, although during the first moments of its administration it is liable to aggravate the convulsions. Tracheotomy in general is not indicated, only one patient dying from spasm of the glottis. The hot-air bath caused immediate relief in one instance, although not preventing a fatal issue, and should probably be applied early to produce any marked beneficial result. Contrary to the generally-accepted view, the temperature was elevated in five of the cases. Moreover, in every instance there was albuminuria, and in three cases the urine contained sugar. ═══ Kolessnikow's observations on the bodies of twenty dogs who had died of hydrophobia led him to about the same conclusions in regard to the morbid anatomy of the disease as were enunciated by Ewart. The vessels of the central nervous system, and especially of the corpora striata, the medulla, and the cord, were distended with blood corpuscles; their walls were infiltrated, and the surrounding circum-vascular spaces were gorged with small round cells and with hyaline masses, consisting partly of exuded elements of the blood, partly of proliferating cells of extra-vascular origin. The accumulations of round cells were also found surrounding the nerve-ganglia.

49. Seeligmüller maintains that *chorea magna* is merely a form of hysteria occurring in children. In support of this view, he urges that in the former there are the same localized abdominal pains which are observed in the latter, and that in both affections these pains come on before an attack, and in both show a tendency to shift their locality. In both, also, the patients display a disposition to exaggerate the troubles which they have, and to simulate those which they have not. The author has seen instances of each of the four varieties which von Ziemssen makes of chorea—namely, the maniacal, the hypnotic, the epileptic, and the convulsive—and in each he has observed the above-mentioned characteristics.

50. Bianchi gives an excellent summary of a number of papers, old and new, upon the subject of *electric chorea.* This affection, which occurs endemically in Lombardy, and occasionally in other parts of Europe, is characterized by continuous violent contractions, rhythmical in appearance, and of equal intensity, like the shocks of an electric current, and presenting at intervals exacerbations, associated with heat of the surface and with sweating. The spasms are always unilateral at first, and may affect the muscles of the face, tongue, eye, arm, trunk, or leg. They do not entirely cease at any time, not even during sleep. The affected parts subsequently become swollen, soft, and paretic; the spasms grow feebler, and may attack both sides of the body. The patient then perspires and becomes livid and comatose; his pulse grows weak, his tongue protrudes, saliva continually dribbles from his mouth, and thus his condition becomes constantly worse till death occurs. The appetite fails early, and there is usually obstinate constipation. There may also be tingling and pain in the limbs. The mind is not affected till near the very end of the disease. The duration is from one week to four or five months, the average being forty days. About ninety per cent. of those affected die. It usually affects robust females of from seven to twenty years. The chief exciting cause is fear, and a number of predisposing causes are alleged, such as hypertrophy of the heart with palpitation, the presence of intestinal worms, menstrual disorders, excess in venery or alcohol, malaria, and a number of depressing conditions. The essential pathological condition of the disease seems to be an interstitial spinal inflammation, with progressive atrophy of the nerve fibers, although this lesion has not been made out by all observers. The diagnosis of the affection is chiefly to be made from ordinary chorea, epilepsy, cerebral tumor, the nervous symptoms of lead poisoning, eclamptic convulsions, and cerebro-spinal meningitis. No treatment is very satisfactory; the most important remedial agents are ice, chloroform, opium, hyoscyamus, atropine, and excitant medicines.

52. Seeligmüller has seen twenty-eight cases of *progressive muscular atrophy*, of which 13 began in the hand, 6 in the arm, 6 in the shoulder, and 3 in the lower extremity. In one case there appeared to be an hereditary transmission of the affection. The author has observed one case in which tertiary syphilis had produced symptoms exactly resembling those of progressive muscular atrophy, and in which a cure was effected by specific treatment.

53. Müller maintains that *Jacksonian epilepsy* is not epilepsy in the true sense of the word. In the former there is no sudden development of the symptoms, no initial loss of consciousness, and no tonic spasm. The convulsions leave behind them a weakness and paresis of the affected muscles, which finally become permanent. In the later stages the tendon-reflex is increased. There are various oculo-pupillary symptoms, although the ophthalmoscope usually detects no change in the structures of the eye. There are generally no vaso-motor alterations. Psychic disturbances are common. The morbid condition which lies at the basis of these associated symptoms is doubtless a primary irritability of the cerebral cortex, followed at a later period by degeneration of the nervous substance. The oculo-pupillary symptoms are explained by the presence of alterations in the sympathetic system. The author has observed a case in which the location of the paresis seemed to show that the *cortical center for the arm* lies in the middle third of the anterior and posterior central [ascending parietal and ascending frontal] convolutions.

54. Mercier, in an interesting analysis of *the phenomena of convulsion*, considers in succession each of the ten factors by which these phenomena are constituted. In regard to the first factor (*a*), *quality*, a convulsion may be either clonic or tonic. The *origin* (*b*) of a convulsion may be either peripheral or central. But, if we regard the different muscular groups in the body as forming various series, the first member of which is found in the larger muscles with simple functions, and the last member in the smaller muscles having a complex function, the origin of a convulsion will always be seen to occur either in the first or the last member of such a series. The *march* (*c*) of a convulsion obeys the following law: first, the muscles first involved become more severely affected; second, the spasm affects additional muscles of the same order (in the above-described series) as those first affected; third, the muscles of the next succeeding order are affected. Or a convulsion may spread by affecting successively different combinations of muscles of the same order without extending to those of the next. As to the *attitude* (*d*) produced, this is dependent upon the three preceding factors, according to the following scheme: All tonic convulsions are bilateral, and produce an attitude ot extension; and the same is true of all convulsions which originate in the central muscles and spread toward the extremities; while all clonic, centripetal convulsions begin unilaterally and produce an attitude of flexion. The *extent* (*e*) of a convulsion is measured rather by the number of different orders of muscles involved than by the area of the body which is affected. The *rapidity* (*f*) varies much, but in general it is true that "the coarser the structural alteration [causing the convulsion] the more deliberate the march." Great rapidity of march is probably due to a permanent instability of the gray substance of the nervous centers, and hence it is that in repeated convulsions, each of which tends to increase the state of nervous instability, the later attacks spread more rapidly than the earlier ones. By the *pitch* (*g*) of a convulsion the author means the degree of rapidity with which the simple muscular contractions which constitute a single spasm succeed each other. It is high at the beginning of a convulsion, and declines toward the end. The remaining phenomena of a convulsive act are the *intensity* (*h*), which regards the strength of one of the simple muscular contractions; the *force* (*i*), which represents the strength of a single spasm made up of several such contractions occurring in rapid succession, and (*j*) the *duration*.

55. Yandell gives an interesting account of the *epidemic of convulsions* excited by the religious revivals in Kentucky in the beginning of the present century. The attacks took the most varied forms, causing sometimes the most violent muscular spasms, sometimes loss of consciousness with catalepsy, and at other times uncontrollable laughter, or fits in which the patient ran on all-fours and barked like a dog.

56. Bouveret mentions a case in which constant exercise of the foot upon the treadle of a sewing-machine had produced a troublesome *spasm of the peroneus longus and gastrocnemius.* The spasm, both in its causation and its character, was quite analogous to the affection known as writer's cramp.

58. Dreschfeld, having reviewed over fifty cases of *diabetic coma*, has drawn some conclusions from his survey. Diabetic coma occurs chiefly in the young, and is developed from a few months to two years after the inception of the diabetes. It appears under three forms, one closely resembling alcoholic intoxication, another presenting a drowsiness which passes into stupor, and a third in which the coma is preceded by epigastric pain, dyspnœa, delirium, and sometimes convulsions. The advent of an attack may be foretold by the odor of the breath and by the presence of aceto-acetic ether in the urine. The test for the latter is the peculiar claret-red color produced by the addition of perchloride of iron. The chief pathological changes are found in the blood and kidneys. The former shows an excess of fat and traces of aceto-acetic ether or its derivatives, acetone and alcohol. Renal changes are frequently visible under the microscope, the most important alteration being a necrosis of the convoluted tubules. The disease has been variously ascribed to a state of acetonæmia and to vascular occlusion by fat emboli, but Dreschfeld shows satisfactorily the insufficiency of both these theories. He himself believes that the coma is occasioned by the retention in the blood of an injurious substance, possibly one of the decomposition products of sugar. Since this decomposition is probably effected by a ferment in the blood, an antiseptic line of medication was recommended, but was found ineffectual.

65. Lannois, in a very interesting article, gives an account of two cases of *paralysis of the brachial plexus*, apparently of peripheral origin. In cases of this sort it has been noticed that certain groups of muscles are apt to be particularly affected, one such group, for instance, being the deltoid, biceps, coraco-brachialis, and supinator longus; and it has been suggested that in the brachial plexus there are points where the filaments corresponding to one such group are collected to form a single fasciculus, which may readily be affected by peripheral influences. Evidence of the existence of such points is found in the results of experiments upon both man and animals. Another interesting fact in one of the cases was a retardation in the secretion of sweat upon the affected side after the administration of pilocarpine—a retardation which Straus had already observed in peripheral facial paralysis, but never in paralysis of central origin. In the same case there were marked vaso-motor disturbances, the difference in temperature in the two hands being from 5° to 8° C.

66. Ireland gives several instances in which mirror-writing—i. e., the habit of writing from right to left with the letters turned as in ordinary back-hand—was associated with *left-handedness*. The reason for this association is not clear, although it may be dependent upon the facility with which both arms execute centrifugal as compared with centripetal movements. Or it may be that the opposite sides of the brain form images of the same object which are inverse to one another.

68, 69. Robinson divides *the laryngeal affections of phthisis* into six categories. These are: 1, purely functional derangements; 2, a catarrhal inflammation of the laryngeal mucous membrane; 3, degeneration of the intrinsic laryngeal muscles, the result of nutritive changes and not of the deposition of tubercle; 4, paralysis of the vocal cords, which may be present without marked derangement of speech, and which is usually caused by pressure of caseous masses at the apex of the lung upon the recurrent laryngeal nerve; 5, anchylosis or luxation of the crico-arytenoid articulation, which, however, rarely if ever occurs; 6, infiltration and ulceration of the laryngeal structures with or without papillary growths. He regards the phthisical ulcer of the larynx as characteristic and readily to be differentiated from a syphilitic or a cancerous ulcer by its superficiality and other features. The papillary growths which accompany phthisis are distinguished by their tendency to return after extirpation. Deposition of tubercle takes place in none of the above-described varieties of laryngeal affection except as an accompaniment of infiltration and ulceration; and even in this variety it is rarely met with. Robinson believes that tuberculosis is less frequently encountered in this country than abroad, and, accordingly, claims that the views of foreign observers as to the connection of laryngeal disease with tuberculous deposit are not to be too strictly applied to the cases which we see here. He advocates local treatment in all cases, believing that not only may the local lesion be cured by this means if taken in its early stages, but the subsequent development of pulmonary disease may in some cases be prevented. This, of course, proceeds on the supposition that the laryngeal trouble may antedate the pulmonary disorder. In advanced cases local treatment is also serviceable, although it is only palliative in its action.

Porter argues that both theoretical and practical considerations should lead us to acquiesce in the *possibility of a cure* in laryngeal phthisis. He alleges three cases of his own in which a cure was effected, and in which the diagnosis was as clear as in any case which he had seen.

71, 72, 73. These three papers were all called out in reply to an article by Dr. Bull, in which the latter had expressed a doubt as to the genuineness of cases of *true croup* cured without tracheotomy. Sell gives the particulars of five cases, Sommerfeldt describes one, and Israel gives one out of several which he has observed, and in all the diagnosis was unmistakable and the cure complete.

75. Leichtenstern presented three cases of *murmurs of intra-thoracic origin audible at a distance* from the patient. The first instance occurred in a strong healthy man with cardiac hypertrophy. The origin of the trouble was from an injury, and the lesion was believed to be a rupture of one of the aortic valves. Here the murmur was occasioned by the vibration of the free edge of the perforated valve in the regurgitating current from the aorta. With the murmur, which was audible when the ear was applied to almost every part of the body, and was a source of great annoyance to the patient himself, was associated a vibratory thrill like that felt on the sounding-board of a musical instrument. In the second case the murmur was occasioned by a mitral stenosis combined with cardiac hypertrophy and nervous palpitation. In the third, in which the murmur was so loud as to prevent a companion from sleeping in the same room, it was due to retraction of the lung with the probable development of a retro-cardiac bronchiectatic cavern the walls of which were set in vibration at each pulsation of the heart.

80. Waters gives an analysis of 115 cases of acute *pneumonia* occurring in hospital practice. The pulse was usually dicrotic; the temperature seldom passed 105°, and in only one instance reached 106°. In half of the cases convalescence set in on the seventh day or in the first half of the second week; about 10 per cent., however, convalesced upon the sixth day, and in one case the disease was prolonged for six weeks. In 5 of the cases the apex was involved, and in such cases, especially in women, the nervous symptoms, delirium, etc., were apt to be especially pronounced. The treatment was mostly confined to the administration of alcoholic stimulants, carbonate of ammonium, spirits of chloroform, and cascarilla, with mild local counter-irritation. Quinine in large doses was found useful when the disease assumed an adynamic form. The mortality under this treatment was 5·1 per cent.

81. Sézary points out that, while it is not uncommon for the smaller bronchi to be plugged up by a fibrinous deposit in cases of *acute lobar pneumonia*, and while such cases do not differ in respect to symptoms or physical signs from an uncomplicated pneumonia, it is far different when the deposit extends to the large bronchi. In these cases, three of which have occurred in his own practice, the symptoms are those of a dyspnœa so severe as to threaten life immediately, and the physical signs are precisely the same as of a pleurisy with abundant fluid effusion (flatness on percussion, absolute loss of voice and breathing sound, etc.). This condition constitutes the pseudo-pleuritic pneumonia of Lépine, and the *pneumonie massive* of Grancher. The author thinks that, considering the importance of making a diagnosis, the use of the exploring needle is admissible in all such cases.

82. Daly reports six cases of *pneumonia* which appeared simultaneously, or in rapid succession, in one house, and in which the disease appeared to be dependent upon direct communication from one patient to another.

83. Duffey has observed a case of Charcot's *pleurogenic pneumonia*—i. e., a chronic interstitial pneumonia developed as the result of a previously existing pleurisy with adhesion, the communication of the inflammation taking place probably through the lymphatics which connect the pleural and pulmonary tissues.

84. De Castro has met with three cases diagnosticated as *disease of the bronchial glands*, in two of which the diagnosis was substantiated by the autopsy. The remaining case was of especial interest, because it had been considered one of tuberculous consolidation and excavation in the lung itself, but, on account of the locality of the dullness elicited by percussion, and because the thoracic phenomena were secondary to an attack of typhoid fever, disease of the bronchial glands was diagnosticated, and the unfavorable prognosis already made was reversed. The complete recovery of the patient justified the second judgment.

85. The difficulty of diagnosticating *acute miliary tuberculosis* is shown in six cases described by Hager, in none of which was its existence suspected during life. In one case the diagnosis of typhoid fever was made during life, and substantiated by the autopsy; but the autopsy alone demonstrated its association with tuberculosis. The author remarks that while the simultaneous development of these two diseases is very rare, it is not uncommon to find, as in the present case, acute miliary tuberculosis making its appearance in the latter stages of typhoid fever, as a direct sequela of the latter disease. In a second case, all the symptoms of typhoid fever were present, even including the roseola, but on post-mortem examination no trace of typhoid ulceration could be found. In another case, the disease co-existed with pleurisy, and its symptoms were masked by those of the latter disease. In a fourth instance, sudden death occurred from acute miliary tuberculosis in a man who had been in apparent good health only a few hours before. Finally, the author cites two cases of the disease associated with acute lobar pneumonia. He believes that the pneumonic process in these cases was not excited by the presence of tubercles in the lung, but should be regarded as the result of the poison of the disease of which tubercle itself is but an expression. In one of these cases a mass of cheesy material was found beneath the diaphragm, which could not have been due either to traumatism or to perforation of an abdominal viscus, and was, therefore, considered by Hager to be the result of a perforating empyema.

86. The author, on the strength of four among four hundred cases of *phthisis* which he has observed, concludes that the disease may be transmitted from one patient to another, and believes that the avenue of this transmission is the respiratory tract.

87. The symptoms upon which Eskridge lays the most stress in diagnosticating *pulmonary phthisis* in its earliest stages are indigestion, with loss of flesh and strength, muscular weakness, pallor, and a nervous, anxious condition of mind, with sometimes periods of unusual mental brilliancy; hoarseness, cough, and thoracic pains; alterations of menstruation; disturbances of the pulse, and elevation of the temperature. All these have their significance, and, occurring in a person of phthisical disposition, should excite suspicion and lead to the adoption of a prophylactic treatment.

88. A case in which the symptoms of acute pleurisy passed into those of the typhoid state, with rapidly appearing exhaustion and death, is described by Lannois, the autopsy showing the surfaces of the pleuræ and peritonæum to be studded with *gray tubercles* ("granular phthisis of the pleura" of Cornil and Hérard). The interesting features in this case, besides its rarity, were the absence of any discoverable mass of caseous material in the body which might act as a focus for the spread of the disease, and the non-involvement of the lungs or other organs in the tuberculous process.

89. Finny's case was that of a man who exhibited all the signs of *phthisis* when he first came under examination, but who shortly developed symptoms closely resembling those of meningitis, such as headache, delirium, continual rolling of the head, intolerance of light and sounds, etc. At the same time there were enfeeblement of intellect, loss of memory, and other evidences of cerebral softening. There was also intense hyperæsthesia of the legs, attended with rapid atrophy of these parts. No signs of spinal disease were present, no paraplegia or loss of control over the sphincters. In this condition the patient remained for more than three months, when the phthisis, the progress of which had been arrested on the appearance of these nervous symptoms, again set in and carried him off. The autopsy revealed *no changes in any part of the brain;* and the cord, although not examined microscopically, appeared perfectly normal to the naked eye. Hence the diagnosis of tubercular meningitis established during life was overthrown, and the symptoms were attributed merely to changes in the cerebral circulation consequent upon the pulmonary disease.

91. Bull, after describing a case of *operative interference for pulmonary gangrene* (free incision, evacuation of pus, washing with carbolized water, and thorough drainage), with the production of a complete cure, thus gives the history of another case in which pulmonary abscess existed, and the indications for a similar operation were urgent, but in which, owing to the non-performance of such an operation, death ensued. He thinks that the operation is indicated in cases of pulmonary abscess, gangrene, or excavation, with firm adhesion of the adjacent pleural surfaces. Previous investigation with an exploring needle is recommended as quite safe, and as affording useful information in regard to the nature and seat of the disease. Strict antiseptic precautions are not necessary, especially as the air will find access to the spot through the bronchi as well as through the incision. In establishing and maintaining drainage, great care must be taken not to excite hæmorrhage or irritation of the exposed pulmonary surface.

92. Lynch's "new point in the differential diagnosis of *cardiac and pericardial murmurs*" is that, during the progress of a slow, full inspiration, the latter increase in intensity till they reach a maximum, which they maintain as long as the breath is held, and that they undergo a similarly progressive decrease during expiration.

93. Hirschsprung has seen a *tuberculous growth in the left ventricle of the heart* of an eight-year-old girl. It occurred in connection with general tuberculosis, and gave such evidence of its presence, both by subjective symptoms and by physical signs, that strong ground existed for diagnosticating it during life.

QUARTERLY REPORT ON MATERIA MEDICA, THERAPEUTICS, AND TOXICOLOGY.

No. VIII.

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18. MM. Laborde and Duquesnel have investigated very thoroughly the physiological and therapeutical actions of *napelline*, the soluble amorphous alkaloid of aconitum napellus. It occurs in glossy scales of a yellowish hue, and is soluble in water, ether, alcohol, and chloroform. It is free from irritating properties, and well suited to hypodermic injection. Physiological experimentation showed that napelline was less toxic than aconitine, and at the same time more hypnotic and anodyne. Therapeutically, the authors report its use instead of morphia in cases of opium habit, and as an anodyne in neuralgia. In the latter affection it seemed to act curatively as well as palliatively. In most cases it was administered hypodermically, although it was found to act almost equally well by the stomach. A centigramme [gr. ⅙] may be given at a dose, and repeated at intervals of four or five hours. No bad effects follow its use; it is free from the tendency to disturb digestion which is such a disadvantage in connection with morphia. The authors have used napelline in only four or five cases, but are much gratified with their results, especially in neuralgia. They recommend a one-per-cent. solution for hypodermic use.

22. Dr. White proposes the *glycerite of pepsin as a solvent of diphtheritic membrane.* He states that pieces of diphtheritic membrane, placed in a solution of pepsin at the temperature of the body, are rapidly dissolved. He also suggests that pepsin acts upon membranous or diphtheritic exudations without affecting the subjacent organized tissues. He has used Bullock's glycerite of pepsin in the form of spray with success in a case of diphtheria. The membrane seemed to be more easily expectorated, becoming gelatinous, and less tenacious and adherent, under the action of the solvent. The solution of pepsin should be warmed to 110° F. before being used, and the physician should satisfy himself by experiment that the preparation he is about to employ is actively solvent.

27. Dr. Hill states, with reference to *boracic acid*, that its antiseptic powers and its freedom from irritating properties render it the best agent under circumstances where a combination of blandness with efficiency is desirable. He cites, as results of individual experiment, the following facts: 1. The addition of boracic acid to urine, in the proportion of five grains to the ounce, will prevent it from decomposing for more than two weeks in the hottest weather. 2. The addition of one grain of boracic acid to the ounce of fresh milk will prevent it from fermenting, and will keep it sweet longer than any other agent which does not alter the taste, and is devoid of undesirable effects. This is especially important in the treatment of infantile diarrhœas in cities. The author constantly adds from one grain to one fourth of a grain of boracic acid to every ounce of milk administered to such patients under his care, and is very much pleased with the result. 3. It is a very efficient parasiticide in the proportion of twelve grains to the ounce. 4. It is as effective as an antiseptic dressing to wounds as carbolic acid or salicylic acid, and has the advantages of being without odor, and possessing no irritating properties. The author has used it with advantage in thrush, and in simple follicular amygdalitis. He recommends it especially in acute gonorrhœa as an injection every three hours, in the strength of from five to ten grains to the ounce of water. In a case of cystitis, secondary to urethral stricture, the author obtained the very best results by injecting the bladder with a solution of boracic acid, eight grains to the ounce. The use of this drug in ear troubles is now so popular that it needs no further mention.

33. M. Delie gives the following points in connection with *iodoform.* It was discovered by Sérullas in 1822, and is analogous in composition to chloroform and bromoform; it is chloroform in which the three atoms of chlorine are replaced by three atoms of iodine. It is therefore teriodide of formyl. It is a yellow powder, insoluble in water, but soluble in ether and alcohol. It is, of all drugs, the richest in iodine, containing 97 per cent. of it. Professor Rigaud, of Strasburg, was the first to use it in medicine, in 1853, and since that time he has employed it very largely. About the same time Humbert and Moretin praised its anodyne properties, and recommended its use especially in fissures of the anus. In 1857 attention was called to it by Bouchardat, and it soon came to be used on all sides in syphilitic ulcers, uterine cancers, and vaginismus. Moleschott believes it to be very efficacious in tubercular meningitis, leucocythæmia, and gout; and, according to the professor of Turin, iodoform rivals digitalis in its power to regulate the heart. Lallier has employed iodoform on a large scale at the Lourcine Hospital, and at the St. Louis Hospital, and is enthusiastic about its anæsthetic powers and its ability to promote healthy cicatrization. This tendency to promote cicatrization has been highly spoken of also by Mosetig, and has recently been the subject of much experimental study in the hands of Billroth. The splendid results following the use of iodoform at the Vienna clinic have been reported at the Berlin congress by Miculicz, who concludes with the following remarks, after having read the histories of thirty-six cases of major operation treated with iodoform: "Iodoform is an antiseptic that deserves our entire confidence. It quiets pain without giving rise to any alarming symptom. It exerts an efficient alterative influence upon ulcers and sluggish wounds, and acts as a specific upon tuberculous processes and fungous granulations." Professor Verneuil has for many years used iodoform as a dressing for ill-conditioned wounds, and, above all, to combat the tendency to chronic suppuration in large hospitals. Professor E. Bœckel recommends its use particularly in bone diseases and joint troubles of a strumatous type, and believes that he has thereby been many times relieved from the necessity of resection or amputation. He even believes that the absorption of the medicine, as shown by urinary analysis, exercises a favorable influence upon the patient's general condition. The same author says that its principal disadvantages—its high price and penetrating odor—are not without excuse, since the dressings can be left in place so long that the expense is less than might be expected, and since a few drops of oil of bergamot counteract the odor sufficiently. The treatment followed by Billroth and others is to wash out and dry the wound; to introduce a drainage tube; to then fill all the interstices of the wound with iodoform, and sew up the lips of the wound as closely as possible. Scarcely any suppuration is observed after this, and recovery progresses "rapidly, without inflammation, without pain, without fever, without any of the accidents which are apt to follow operations under other circumstances." The quantity of iodoform introduced into large wounds, such as those following resection of the elbow, is sometimes as great as one hundred to one hundred and fifty grammes (℥ iijss. — ℥ v). Although iodine is found in the urine in such cases, no bad effects seem to follow. [Two cases of death following this method of using iodoform have recently been reported. See the December number of this journal, p. 664.] Iodoform introduced in large quantities into wounds seems to be dissolved in the animal fluids and removed by absorption, destroying in the mean time all infectious substances, and in some way promoting healthy repair and cicatrization. Why toxic symptoms do not follow this extensive absorption has not been explained; but the fact that the treatment is daily employed with the best results stands established, notwithstanding. The author believes that the oil of bergamot neutralizes the odor better than anything else.

40. M. Bauwens, speaking of the *treatment of goître with ergotin*, divides cases of goître into the following classes: 1. Cystic goître, with easily apparent fluctuation. 2. Goître partly cystic and partly hypertrophic. 3. Goître characterized by diffuse parenchymatous hypertrophy and great vascularity. 4. Recent goître, soft and diffuse. In cystic goître, and in soft, diffuse, recent goître, the author considers that iodine is the best remedy, and has most confidence in parenchymatous injection as the mode of its employment. He calls attention to the fact, however, that in proportion as vascularity predominates as a cause of thyroid enlargement, so will iodine fail to cause reduction. Iodine stimulates the reabsorption of the contents of the cysts, but can not cause the vascularity to diminish. It is in these latter cases that the author recommends ergotin. The ergotin should be injected into the substance of the tumor; it at once causes contraction of the muscular coats of the small arteries, and a diminution in the size of the tumor and in the amount of pulsation observed in it is at once apparent. He uses the following solution: ℞. Yvon's ergotin, 1 gramme (gr. xv); glycerine, water, in equal parts, enough to make 7 grammes (ʒ j¾). Of this solution he injects 2 grammes (ʒ ss.) at a time directly into the substance of the goître; this treatment is repeated at intervals of about two weeks until a cure is effected. It may not be out of place to mention that the ergotin of Yvon does not differ in any essential from that of Bonjean and other makers. The author reports the following case: A woman of twenty-nine had suffered from goître since the age of fourteen. Moderate in size for seven or eight years, the tumor had lately begun to enlarge quite rapidly; at the time of examination it measured three inches transversely, by two and a half vertically, the right lobe predominating. It was elastic to the touch, pulsated, and presented a slightly marked souffle. At the menstrual epoch, upon excitement, or as a result of singing, shouting, or hard work, the tumor became more enlarged, and pulsated vigorously. The signs were those of a goître essentially hypertrophic, with predominance of the vascular element. At times there were attacks characterized by dyspnœa, buzzing in the ears, dizziness, and dimness of vision. Twice the patient had suffered from attacks of complete aphonia lasting two or three weeks. Iodine had been tried in various forms and ways, but without any good result. Parenchymatous injections of ergotin, as described above, were practiced for five weeks every six or seven days; at the end of that time the tumor had completely disappeared. There was at no time any considerable soreness or pain as a result of the injections. A little swelling with some sensitiveness at the point of injection, lasting only about forty-eight hours, was the only trouble occasioned. The author suggests the treatment in exophthalmic goître, although he has not yet had an opportunity to try it.

46. M. Archambault reports the result of twenty-one cases of *diphtheria treated with pilocarpine*. Of the patients twelve died and nine recovered. The cases which ended in death were very severe ones; the patients who recovered were those in whom a cure might have been expected under any reasonable system of treatment. The author is inclined to draw the following conclusions from his observations: 1. That no case was cured which seemed to show clearly any positive, and at the same time unusual, efficiency in the treatment. 2. That in many cases the remedy acted unfavorably by causing great depression, without any compensatory amelioration of other symptoms of the disease. 3. That in the cases which ended in recovery the membrane did seem to be loosened and more readily removed than in cases in which salivation was not induced; but that this greater facility of removal by salivation did not seem to be sufficiently advantageous to outweigh the other damaging effects of the treatment. 4. That in the severe cases new membrane was deposited on the surfaces from which old patches had recently separated, in spite of the fact that salivation was being kept up by the use of pilocarpine; and therefore that the treatment did not prevent the continued formation of membrane. In general, the author is inclined to infer from his observations that the treatment of diphtheria with pilocarpine is not followed by good effects, and that its advantages are outweighed by its disadvantages.

48. Dr. Kauders reports three cases of *atropia poisoning treated with pilocarpine.* The first was that of a patient seventy-four years of age, poorly nourished and weak, with feeble heart and atheromatous arteries. The quantity of atropia taken was not ascertained. The man was found unconscious, with stertorous breathing, dilated pupils, insensible to light, and almost complete abolition of reflex excitability. He was first seen by the author eight hours after the poisoning had been discovered; morphine had been administered, and strong coffee. The author immediately injected two centigrammes of pilocarpine (gr. ⅓) hypodermically; this dose produced no perspiration or salivation. In thirty minutes a third centigramme (gr. ⅙) was injected. After this the skin became moist, and the action of the heart became less rapid and irregular. Some return of sensibility and of reflex excitability was also observed, and the breathing ceased to be stertorous. The patient's condition continued to improve for some hours. He moved his tongue, and partially returned to a state of consciousness; in a little while he was able to swallow some brandy and water which was held to his lips. About five hours after the second injection of pilocarpine the symptoms of poisoning began to return, and the patient lost consciousness again. Another injection of pilocarpine was given, and the patient again began to improve. After this the symptoms of atropia poisoning did not return, but the patient became weak and collapsed. He finally died, twenty hours after taking the poison, without any symptoms other than those attending the prostration which might be expected to occur in a weak old man after such a strain. In spite of the fatal termination, the author considers that the case evidently showed that the action of pilocarpine was efficiently antidotal to that of atropia. On each occasion when the pilocarpine was used the symptoms were temporarily relieved, and, when the patient finally sank, it was without the recurrence of any toxic symptoms. In cases of atropia poisoning, in which, as is familiar, the symptoms last two or three days, pilocarpine will have to be given at short intervals, its influence rapidly subsiding in consequence of its ready elimination. The effect of a full dose of atropia lasts for days; the largest safe dose of pilocarpine exhausts its influence in three or four hours. The remaining cases reported by the author were that of a lad of fourteen and that of a man of fifty-four. Both patients were fully poisoned, and presented stertor, unconsciousness, and loss of sensibility and reflex excitability. They were treated as in the preceding case, the injections of pilocarpine being renewed every four or five hours until the signs of atropia poisoning ceased to reappear. The author recommends a first injection of two centigrammes (gr. ⅓) of pilocarpine. In thirty minutes, if the condition of the skin, of the pupil, of reflex excitability, and of the circulation shows that the pilocarpine has produced no effect, another injection of one centigramme (gr. ⅙) may be given. From this time the pilocarpine may be given every three or four hours as long as the symptoms seem to call for it. Under these circumstances, the action of pilocarpine is so far antagonized by the atropia that doses ordinarily toxic produce scarcely any sweating, and are not followed by any signs of depression. The author believes that pilocarpine is by far the best antidote in atropia poisoning, and should always be preferred to other drugs.

56. A case of *poisoning with resorcin* is reported by Dr. Murrell. Attention has of late been directed to this new drug by the publication of papers on its physiological action by Dr. Julius Andeer, of Würzburg; Professor Lichtheim, of Berne; Dr. Dujardin-Beaumetz, of Paris; Dr. Callais, and others. Resorcin, resorcenal, or metadioxyl benzene, is a compound isomeric with hydrochinon, a substance recently introduced by Brieger as an antipyretic. It was discovered in 1864 by Illascwetz and Barth, who obtained it by fusing galbanum resin with potash. They named it resorcin, partly because it was procured from a resin, and partly because it resembled orcin, which had been extracted in 1829, by Robiquet, from lichens. It is also formed by the action of potash upon assafœtida, ammoniacum, sagapenum, and acaroid resins. Körner has prepared it synthetically. Commercial resorcin is red in color, and smells of carbolic acid. Pure resorcin, which alone should be used in medicine, is met with in white, feathery crystals, having very little odor and a sweet, pungent taste. It is freely soluble in ether, alcohol, glycerine, and vaseline; but is insoluble in chloroform and bisulphide of carbon. It has a neutral reaction, and burns with a clear bright flame. It forms a white precipitate with albuminous solutions, the precipitate being probably albuminate of resorcin. Its solution gives with perchloride of iron a deep violet color, and with fuming sulphuric acid a yellowish orange tint. The observations of Andeer and others show that it arrests almost all forms of fermentation, and is powerfully antiseptic. For surgical purposes it has many advantages over carbolic acid; it is probably less poisonous, and certainly less irritating; it is almost odorless, and is very soluble in water. In rabbits, dogs, and other animals large doses produce epileptiform convulsions with respiratory failure, the heart continuing to beat after respiration has ceased. Its action on man has been but little studied. The ordinary dose is one half to three grammes (gr. vijss—gr. xlv), but more may be given. Lichtheim found that after a full dose there occurred giddiness and buzzing in the ears, the face became flushed, the eyes brighter than before, the breathing quickened, the pulse somewhat more frequent and occasionally irregular. In from ten to fifteen minutes after the dose had been taken the skin became moist, and a few minutes later the whole body was bathed in perspiration. He found that in fever-free patients the temperature was reduced five or six degrees Fahrenheit; this induced him to employ it as an antipyretic. When given in large doses it often induces symptoms of intoxication, with illusions and moaning respiration, but—and he especially refers to the fact—no symptoms of collapse were ever noticed, either during its administration or afterward. Andeer, on one occasion, took ten grammes (ʒ ijss) of resorcin in two hundred and fifty grammes (℥ v) of water. In fifteen minutes he lost consciousness and was seized with epileptiform convulsions. He recovered in five hours. Therapeutically, resorcin has been employed in the treatment of acute articular rheumatism, ague, and typhoid fever, and for the reduction of temperature in phthisis. In the form of spray or powder it has been used in the treatment of diphtheria, and is said to be a good dressing for syphilitic and other sores. From a consideration of its physiological action, the author was induced to try resorcin in a case of asthma which had resisted in succession the following measures: Arsenic, belladonna, ipecac, lobelia, iodide of potassium, citrate of caffein, stramonium and datura tatula, jaborandi and pilocarpine, Jamaica dogwood, quebracho and its alkaloid, nitrite of amyl, nitro-glycerine, iodide of ethyl, pure terebene, hypodermic injections of morphia and atropia, niter papers and tablets, cubebs cigarettes, and inhalations of all kinds. In addition, she had been carefully dieted, and change of air had been tried. Nothing seemed to do her much good but grindelia robusta, and even this, although it acted admirably for a time, eventually lost its good effects. At last it was determined to try resorcin; half a drachm was given in a little milk during a paroxysm. She experienced no difficulty in taking it; her breathing became easier almost at once. She fell asleep in half an hour, and awoke after a three hours' nap free from shortness of breath and feeling comfortable. The urine passed on the following day was of an olive-green color, as if carbolic acid had been taken. The same dose was given on two other occasions during a paroxysm, but failed to give relief. The dose was then increased to a drachm. Immediately on taking the powder, which was given in a little milk, she experienced a decided sensation of giddiness; this was followed almost at once by drowsiness, the dyspnœa was relieved, and in a quarter of an hour she was fast asleep. This was tried on four occasions, and always with the same result. The pupils were not affected, and there was no diplopia or tinnitus aurium. The action on the urine was more marked with the larger doses. She generally perspired freely after taking the resorcin. She was satisfied that the powders relieved the dyspnœa, but postponed taking them as long as possible on account of the giddiness which they produced. The dose was now increased to one drachm and a half without the production of symptoms other than those already described. One morning at half past five she was found to be suffering from one of her usual asthmatic attacks. At seven she was given two drachms of resorcin in milk. Almost immediately, as she afterward related, "it flew to her head, and she felt giddy and had pins-and-needles sensations all over." In a few minutes she became insensible, and was found lying on her side with closed eyes and clenched hands, faintly moaning. She had not been sick, but was bathed in perspiration and quite cold. The pupils were equal and normal; there was no foaming at the mouth and no smell in the breath. The conjunctivæ were insensible to the touch; there was no paralysis of the facial muscles or œsophagus. The pulse was imperceptible in the radials, and the chest walls were almost motionless. No urine or fæces was passed. The muscles were relaxed, and reflex excitability was destroyed. The mouth was forced open and two ounces of olive-oil were poured down the throat. By means of the stomach pump the stomach was then washed out with tepid water. A scruple of sulphate of zinc was then injected, and the patient vomited slightly. The pulse was still weak and thready, and the temperature in the axilla was found to be 94°. She gradually improved up to eleven A. M., when the temperature was again normal, and sensibility and consciousness had returned. During the next few hours there was a febrile reaction which reached 102°. On the following day and thereafter the temperature was normal. There was at no time during the attack ptosis, strabismus, or ptyalism. The urine for twenty-four hours presented the olive-green hue described, but after that time became normal. There was no action of the bowels. The poisoning proved to be due to the fact that two drachms of an entirely new preparation had been taken, which was much purer and more powerful than those from which the first doses had come. [The symptoms developed in this case present several points of interest. The similarity to carbolic-acid poisoning is at once apparent. The cold sweats, stupor rapidly deepening into collapse, the complete abolition of sensibility and reflex excitability, are worthy of note. The fall of temperature and the effect upon the temperature are both striking. Resorcin seems to have a direct depressing influence upon all functional activity. The treatment was good. The olive-oil probably prevented the absorption of the resorcin until the pump could be used. If the collapse had continued, an hypodermic injection of atropia might probably have been administered with advantage. Dr. Andeer considers that albuminate of iron and red wine are probably the best chemical antidotes in resorcin poisoning.] The author does not know what is the largest dose of resorcin which may be given with safety. He has frequently given forty grains every four hours with good effects.

61. M. Robin calls attention to *a rare result of the action of cantharides.* A child, seven and a half years of age, suffering from Pott's disease, was treated by the application of the actual cautery to the back, on each side of the spine. These blisters were then dressed with cerate of cantharides. On different occasions the child had violent attacks characterized by pains in the abdomen and loins, with nausea, constipation, and intense pains on urination. The different physicians who were called to the case experienced great difficulty in deciding as to the nature and cause of the attacks. Some considered them to be due to vesical neuralgia, others attributed them to amyloid degeneration of the kidneys, and there were still others who believed that the symptoms were excited by "compression" myelitis. Examinations of the urine, made many times by the author, showed increase of the phosphates with diminution of the chlorides during the attack; and, above all, intense albuminuria which preceded the attacks by some hours, and was increased during their progress, disappearing entirely after they had ceased. There were in the urine no blood corpuscles, either red or white. Finally, it was suspected that the cerate of cantharides might be at the bottom of the mischief. To determine this, the use of cantharides was discontinued; as soon as this was done, the attacks ceased to occur. In conclusion, M. Robin calls particular attention to the albuminuria which was such a prominent feature in the case, and which is so rare among the accidents following the employment of cantharides.

QUARTERLY REPORT ON DERMATOLOGY AND SYPHILOGRAPHY.

No. IX.

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13. Crocker describes a form of lichen which occurs upon the back and chest, and which appears to be identical with the disease sometimes described as "*lichen circumscriptus*" *seu* "*circinatus*." He regards it as a parasitic affection. The eruption "consists of rings and small groups of papules which tend to spread at the circumference into rings, the papules forming a bright-red, well-defined margin, while the skin in the center is either yellow, or, more commonly, of a reddish-fawn color." Sometimes the rings are perfect, and sometimes they meet and form gyrate lines. Occasionally there are yellowish patches without papules at the margin, the papules having probably disappeared, leaving the stains behind. These fawn-colored discolorations are said to be strikingly like spots of tinea versicolor. In the papules he has found spores and mycelia, both upon epithelial scabs and isolated. In general appearance the fungus is said to resemble that of tinea versicolor. It is not found in abundance, and requires careful search. It is recommended that the scabs be soaked in a mixture of ether and chloroform, by means of which the fatty particles are removed. Only the papules contain the fungus; in the fawn-colored parts it is not found. The disease may last for years. It yields to treatment with parasiticides—such as sulphuric acid, hyposulphite of sodium, thymol, and mercurial applications.

16. Morrant Baker introduced the subject of *prurigo* (the prurigo of Hebra). He claimed that it occurred in England more frequently than was generally supposed. It had been commonly overlooked, on account of the eczema which complicated it. ═══ Kaposi said that some of Baker's cases which he had seen were undoubted specimens of the disease. He called attention to the distinction between prurigo mitis and prurigo agria. While cases of the latter could not be mistaken, those of the former might very easily be overlooked. ═══ Walter Smith, of Dublin, stated that in Ireland the disease was by no means uncommon. [In this country it must be extremely rare, for it has certainly been looked for enough. If it occurs at all, it must be only as a prurigo mitis.]

17. By "*Paget's disease of the nipple*" is understood a peculiar eczema-like affection of the nipple which, though closely resembling eczema, differs from it in its well-defined margin, in its intractability, and in that it invariably leads to cancer of the ducts, in middle-aged persons, if allowed to continue for some months. The relations of this disease were first pointed out by Paget, and hence the name. Munro relates several cases of the disease. In one of them, notwithstanding the nipple was removed before any symptoms of cancerous disease had appeared, the affection returned in the cicatrix, and was subsequently followed by cancer in the gland.

20. The work of the Dermatological Section of the International Medical Congress, lately held in London, though not particularly notable for originality or novelty in the papers presented, was interesting, mainly on account of the views elicited from different dermatologists on certain mooted points relating to subjects with which we were already more or less familiar. Thus, in the discussion of *lupus erythematosus*, opened by Kaposi, the expression of opinion with regard to the question as to whether it was an inflammatory or a neoplastic disease was important. As its name implies, it was originally regarded as a kind of lupus, and it can scarcely be said that its real pathological position has been determined yet. All of the speakers held that it was a disease entirely distinct from lupus vulgaris. Kaposi's remarks were, in the main, a reiteration of what may be found in the work of which he and the late Professor Hebra were the authors. The speaker, while inclining to the inflammatory hypothesis of the disease, proposed the question—What kind of inflammation could it be which so rapidly led to cicatrization of the skin? He gave a detailed account of the results of histological investigation, giving prominence to the alleged implication of the sebaceous glands. An acute form of the affection was described in which "the whole organism" was "attacked," but the speaker did not consider that even then the cause

arose in any central nervous trouble, nor in a "faulty constitution." It was a strictly local disease. ═══ Veiel, of Canstatt, discussed the disease under five propositions: 1, It was an independent disease, and not a variety of lupus vulgaris; 2, there was no connection between it and scrofula, tubercle, or syphilis; 3, the affection of the sebaceous and sweat glands was only accidental, the essential feature being a change which advanced along the blood vessels; 4, no internal remedy cured the disease; 5, the best treatment was multiple scarifications and subsequent cauterization with chloride of zinc. ═══ Wilson thought that the disease began as an erythema, which became permanent in consequence of exposure to irritation. He referred to a case of a pregnant woman who had had an attack of erythema in the face; after exposure to cold the rash spread on to the trunk, and eventually became lupus erythematosus. ═══ Vidal was unwilling to admit that the disease was simply inflammatory, but held that it occupied a position intermediate between inflammation and neoplasm. Producing inflammation cured it. ═══ Unna claimed that it began as an inflammation and afterward became a neoplasm.

32. There was an interesting discussion upon that obscure chronic affection of the mucous membrane of the mouth, which is characterized by more or less circumscribed patches of whitened and thickened epithelium, and has been variously termed "psoriasis" or "ichthyosis" of the mouth, "keratosis," and "*leucoplakia buccalis*." The last-named term is the one adopted by Schwimmer, who introduced the discussion, to distinguish between this disease as it occurs idiopathically and affections of the mouth which are symptomatic, more particularly in respect to syphilis. The idiopathic affection begins with circumscribed, red hyperæmic patches on the tongue or inner surfaces of the lips or cheeks, which may last weeks or months, and then either disappear entirely or become grayish or white upon their surface, and so persist indefinitely. These same changes might occur in syphilis, but in that case the epithelium would be affected more rapidly, and the affection would yield more readily to treatment. In the idiopathic disease the epithelium gradually increased in thickness and encroached upon the deeper structures, giving to the patches a thickened and fissured appearance. The infiltration and cell proliferation which characterized the disease explained its persistence, as well as the disposition to merge into other processes, such as epithelioma. ═══ Kaposi insisted upon the distinction between the earlier and the later stages. For the latter he had reserved the term "keratosis mucosæ oris." This phase of the disease occurred chiefly in syphilitic patients, but in its later stages it was but little influenced by antisyphilitic treatment. The slighter forms were met with in hysterical women and nervous persons. In such cases there was hyperæsthesia of the patches, which were denuded of epithelium and showed hypertrophic papillæ. ═══ It was conceded by all the speakers that the etiology of the affection was obscure, and that it was not possible from the appearances alone to distinguish between the syphilitic and the non-syphilitic form.

33. Lyman's article is a reply to a paper by a previous writer in the same journal (Dr. T. F. Wood), in which it was maintained that *vaccinia and variola* were not "identical diseases," for the reasons that they were never converted into one another; that cow-pox never occurred as an epidemic disease; that it never tended to spread generally over the body, and had never the contagiousness of variola; and, finally, that the structure of the pustules in the two diseases was different. Lyman's argument is in part a dissent from the truth of his opponent's assumptions, and in part a contrary interpretation of some of the acknowledged facts. While admitting that there are marked outward differences between the two diseases, he maintains that these are sufficiently accounted for, assuming that vaccinia is a form of variolous disease, by the modifications to which the disease is subjected in passing through another animal species. The writer objects to the term identical as used by his opponent. The diseases, he claims, though of course not identical *stricto sensu*, are so "generically."

34. In Kalischer's case of *generalized vaccinia* an infant with eczema of the face was vaccinated. A week later pustules precisely like that on the arm had developed upon the face, where they became confluent. Other similar pustules occurred on the flexor sides of both arms and legs, and a few upon the pubes, scrotum, and penis. All these pustules ran a course similar to that of the pock on the arm and left characteristic cicatrices. [Such cases as this and one reported by Hutchinson would probably be regarded by Lyman and other unicists as instances of reversion of the vaccine disease to something like its original variolous form.]

36. Behrend divides *vaccinal eruptions* into two classes—to wit, the early and the late. The former are due to the vaccination wound, while the latter are owing to absorption of material from the developed pustule. He describes seven cases. Five of them occurred during the first three days, and were pustular, erythematous, or herpetic in character. In one case there was simply an aggravation and extension of an already-existing eczema. In the seventh, the eruption resembled measles, without fever or catarrh, and appeared on the eighth day. [Hardy makes three classes of vaccinal eruptions: 1. Generalized vaccinia, which he claims is not uncommon; 2. An exanthematous eruption which occurs before the vaccinia has developed; and, 3. Diathetic eruptions, such as eczema, which occur after pustulation.]

37. Hutchinson describes a case of so-called *vaccinia gangrænosa.* On the eighth day after vaccination an eruption appeared over the body which so resembled small-pox that at first it was supposed to be that disease. The face, trunk, and extremities were affected, the spots being more or less symmetrical. The hands and feet were free. After a time the spots became gangrenous, and the ultimate result was death. The writer associates it with the other vaccinal eruptions which have been described, and claims to have observed similar phenomena in connection with varicella.

38. The interesting point is raised by Warlomont, in his remarks on *vaccination*, that a single vaccination, even though it "takes," is not necessarily protective. It is stated that it often happens that shortly after well-marked vaccinia revaccination may be performed with perfect success. Hence, it is argued that if one attack of vaccinia is not protection against another attack of that disease, *a fortiori* it will not protect against variola. Therefore he revaccinates invariably at the end of a week, whether the previous vaccination has taken or not, using lymph from the patient's own arm if the pock is well marked. The revaccinations are continued till they cease to take.

40. The discussion of Dr. Liveing's paper on *alopecia areata* failed to bring out much testimony in favor of the parasitic origin of the disease. The writer of the paper, after some remarks on the parasitic hypothesis, proceeded to give his reasons for considering the disease of neurotic origin. These related to the constitution of the subjects most apt to be affected; to the concomitant nerve disturbances which often precede or follow the disease; the effect of blistering-fluid upon the skin affected; the location of the disease; the competence of defective innervation to account for the local chánges; and, finally, to certain allied diseases. ═══ Vidal, Hardy, Thin, and Gaskoin held that the disease was "sometimes" contagious. They argued that if alopecia could be communicated there must be a material contagium, and this was maintained to have been discovered in the form of bacteria "in the hair-roots and between the root and the root-sheaths." Vidal claimed that there were three forms of alopecia. The first of these was neurotic in character, and was accompanied with pruritus and redness; the second, called *pelade achromateuse*, was atrophic. The skin was white and depressed. In the third form the hairs were broken off, as in ringworm, but the patch felt less hard to the touch. ═══ Vidal had seen this form of the affection occur in five members of a family. In another case the disease was communicated from one actor to another who wore the same wig. With regard to the alleged parasite, he expressed considerable doubt, referring to the fact that "no fungus was ever found deeper than the orifices of the sebaceous glands," and could not feel sure that the parasite was the cause of the disease. ═══ Hardy thought that the contagiousness of the affection was confined to its earliest stage. ═══ The German speakers—Kaposi, Hebra, Unna, Simon, and Schwimmer—adhered to the nerve theory. None of them had seen a contagious form.

66. Mastin relates a singular case of *sloughing of the urethra* after a very strong injection had been used. The case was under the care of Dr. Sherard, of Mobile. The patient, a fairly healthy man, forty-four years of age, noticed, a fortnight after a suspicious intercourse, "a slight bloody discharge from the urethra, containing numerous blackish 'specks and threads,' some redness of the meatus with only slight pain on micturition." Accompanying these symptoms there were malaise and some vesical irritation. The patient prepared for himself a saturated solution of a mixture composed, as he alleged, of equal parts of the sulphate of zinc and acetate of lead. The urethra was injected with this solution, and, although it caused much pain and aggravated the irritation, the injections were continued for three days. A few days after, the patient was compelled to seek relief on account of retention, with great pain and vesical tenesmus. Dr. Sherard, on examining the parts, "found the meatus filled with a grayish substance which completely occluded the outlet. Gentle traction with the dressing forceps removed a tubular cast of from two to two and a quarter inches in length, and, apparently, about the ordinary diameter of the urethra. This was soft, easily torn, and bore every evidence of coming from a granulating surface." This being removed, the retention was relieved. Afterward, in exploring the urethra with a bulbous bougie, the navicular fossa was found "smooth, soft, and natural, but immediately behind it the urethra became rough, irregular, and sensitive, the roughness continuing as far back as the membranous portion." The retention came on again, and under violent straining another cast was expelled, about three and a quarter inches in length, followed by a gush of urine. After this, urination was very painful for some time, but gradually improved, and all discharge ceased. The condition of the urethra could not be further ascertained, since the patient refused to submit to another instrumental exploration. Mastin, in commenting on this case, surmises that some more caustic substance was injected than the patient supposed. He suggests that the chloride instead of the sulphate of zinc may have been used. No means of verifying his theory was afforded, since none of the solutions could be procured.

67. Mr. Harrison reported a case before the Royal Medical and Chirurgical Society which illustrates a mode of remedying a certain form of prostatic enlargement. The patient was admitted to the Liverpool Royal Infirmary suffering from stone in the bladder and enlarged prostate. Lithotomy was performed, but it was found that the size of the stone necessitated a bilateral incision of the prostate. A *prostatic tumor* was then encountered, which furnished an additional obstacle to the extraction of the stone. With the finger this tumor was enucleated from its capsule, when the stone was readily withdrawn. The case led the writer to the follow conclusions: "1. Lateral cystotomy may be practiced in certain cases of enlarged prostate which are attended with symptoms producing great distress, with the view of exploring, and, if possible, of removing the growth. 2. In all cases of cystotomy for calculus, where the prostate is found to be enlarged, a careful search should be made with the finger, with the view of effecting the removal of the growth, should such be found practicable. In determining the selection of lithotomy or lithotrity in a case where stone in the bladder is complicated with enlargement of the prostate, regard should be had to the possibility of removing both of these causes of annoyance by the one operation—namely, by lithotomy." It was suggested that, in case of a pendulous enlargement of the third lobe, "a simple form of *écraseur*" might be employed for its ablation. ═══ In the discussion Sir Henry Thompson spoke of the frequency of encapsulated tumors of the prostate. He objected to the name "adenoma," which Harrison had applied to these tumors. Inasmuch as they nearly approached the gland in structure, he thought "encapsuled prostatic tumor" was a better name for them. He had performed the operation of cystotomy for enlarged prostate, but was "disappointed in the result," as the patients were still obliged to use the catheter afterward. He observed that he would be glad to see the way to relieve cases of prostatic obstruction by operation; but operative interference was dangerous in persons sixty or seventy years of age, and he doubted if it would be justifiable to perform on them "an operation of which the mortality was about one in four," except when the patient's suffering was very great.

69. A valuable paper, read by M. Rollet before the "Société Nationale de Médecine de Lyon," contains a strong argument for *the "American origin" of syphilis.* He not only shows, by abundant citation of authorities, that syphilis was a new disease in Europe on the arrival of Columbus from the West Indies, but, furthermore, adduces new evidence of its existence in America long before this. The new evidence is based upon examinations of Peruvian skulls exhumed under circumstances that clearly attest their high antiquity. These skulls, it is claimed, bear unquestionable traces of hereditary syphilis. In the same paper the writer speaks of a human skeleton discovered near Solutré, and presented by the Abbé Ducros to the Museum of Anthropology of Lyons. The bones of this skeleton, which belong, it is claimed, to a prehistoric period, show three osseous tumors which were regarded by Parrot, Broca, Virchow, and other savants as syphilitic exostoses. The writer infers that, inasmuch as remains from a later period fail to exhibit any such changes implying syphilitic disease, the malady that existed among the race inhabiting Solutré must afterward have become extinct.

79. Dr. Eldridge, whose long residence in that country enables him to speak of *syphilis in Japan* with authority, combats the prevalent opinion that "Japanese pox" is a disease of more virulent character than syphilis is elsewhere. A similar opinion prevails with regard to Chinese syphilis, and from travelers in various remote countries we have received descriptions of the disease more or less differing from the characters which belong to the affection as commonly observed. We hope that, sooner or later, the truth or falsity of these descriptions or opinions may be exposed by observers as well qualified for the task as the writer of the present article concerning syphilis in Japan. Eldridge contends that the exaggerated impressions regarding the malignant character of Japanese syphilis were formed nearly twenty years ago, and arose, partly from the fact that the observed cases were placed under unusually unfavorable hygienic influences, and partly from the withholding of mercurial treatment in deference to the anti-mercurialistic notions which prevailed at the time. He claims that while among the Japanese syphilis is extremely prevalent, so much so that "it is very exceptional to find a male Japanese who will not acknowledge that at some time he has suffered from syphilis," nevertheless, the graver lesions are rarely met with, and it is exceedingly unusual to find any traces of the disease remaining in after years. Though it is admitted that the mortality from infantile syphilis must be great, he observes that "this is due, not so much to the virulence of the disease, which generally yields readily to treatment by the foreign surgeons, as to the fact that the native practitioners exhibit little skill either in diagnosis or in treatment of the hereditary disease, and to the mode of life of the people, which is admirably calculated to eradicate all weak or sickly children, though no people are more devoted to their offspring, and there is no trace of the desire to get rid of weakly or crippled young, so often met with among more savage tribes." The Japanese children are spoken of as generally having the appearance of "robust health." [The explanation offered by the writer of the mildness of the disease in Japan is apparently suggested by the theory propounded by Fergusson to account for the benign character of syphilis in Portugal. This observer argued that the well-nigh universal infection of the race had almost conferred immunity upon the present generation, or at least sufficed to protect the people from the disease in its graver manifestations. Eldridge says "it is as though the blood of the nation, either directly or by inheritance, has become more or less infected by the poison; and this, in compliance with a well-known law, applying to most infectious diseases, if it does not prevent the contraction of new infection by the individual, at least modifies the effects of the contagion."]

80. In this article on *the treatment of syphilis* Cadell avows himself an anti-mercurialist. He not only denies that mercury is an antidote to syphilis, or that it can act as a tonic to the organism, but claims that its administration favors the development of gummata. Whatever temporary influence it may have over syphilitic lesions he believes to be wholly due to its "stimulating action on the skin." [This latter statement is not fully elucidated. It is not clear, for example, how stimulation of the skin can influence a specific iritis. The writer refers to twelve years' experience in treating syphilis without mercury, and claims better results than he obtained when he was in the habit of giving it. During the primary and secondary stages he prescribes only "tonics" and certain appropriate local measures. Where there are "bone pains" and "periosteal swellings," he administers the iodide of potassium, and the same remedy for the manifestations of the tertiary stage. The somewhat extraordinary statement is made incidentally that inflammations of the periosteum may precede the skin eruptions.]

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Miscellany.

ARMY INTELLIGENCE.—*Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from January 14, 1882, to February 13, 1882.*—CAMPBELL, JOHN, Lieutenant-Colonel and Surgeon, Medical Director, Department of the South. Granted leave of absence for fifteen days from 13th inst. S. O. 17, Department of the South, February 11, 1882. ═════ STERNBERG, GEORGE M., Major and Surgeon. Granted leave of absence for one month; and during his absence Surgeon J. C. Bailey to attend the sick at Point San José, California. S. O. 9, Military Division of the Pacific and Department of California, January 16, 1882. ═════ WOODWARD, JOSEPH J., Major and Surgeon. Granted leave of absence for eight months on surgeon's certificate of disability, with permission to go beyond sea. S. O. 23, A. G. O., January 30, 1882. ═════ WOODHULL, A. A., Major and Surgeon. His leave of absence extended one month and ten days. S. O. 27, A. G. O., February 3, 1882. ═════ GARDNER, WILLIAM H., Captain and Assistant Surgeon. Assigned to duty as Post Surgeon at Fort Concho, Texas. S. O. 13, Department of Texas, February 6, 1882. ═════ TREMAINE, W. S., Captain and Assistant Surgeon, who reported at these Headquarters, January 9, 1882, per paragraph 12, S. O., C. S., A. G. O., will await further orders in New York City from date of his so reporting. S. O. 20, Department of the East, February 7, 1882. ═════ BARTHOLF, JOHN H., Captain and Assistant Surgeon, Fort Lapwai, Idaho. Granted leave of absence for fifteen days. S. O. 12, Department of the Columbia, January 25, 1882. ═════ COMEGYS, E. T., Captain and Assistant Surgeon. To be relieved from temporary duty at Columbus Barracks, Ohio, on receipt of order, and to report in person to commanding general, Department of the Missouri, for assignment to duty. S. O. 32, A. G. O., February 9, 1882. ═════ BIRMINGHAM, H. P., First Lieutenant and Assistant Surgeon, who returned to Fort Leavenworth, Kansas, on 12th inst., from leave of absence, to proceed to Fort Gibson, Indian Territory, and report to the commanding officer for duty, relieving Acting Assistant Surgeon Collins. S. O. 12, C. S., Department of the Missouri. ═════ MADDOX, THOMAS J. C., First Lieutenant and Assistant Surgeon. Having reported at these Headquarters, in compliance with S. O. 2, C. S., A. G. O., will report to the commanding officer, Fort Clark, Texas, for duty. S. O. 6, Department of Texas, January 16, 1882. ═════ WHITEHEAD, W. E., Captain and Assistant Surgeon. Died at Tarrytown, New York, on January 15, 1882.

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Original Communications.

ON THE REMOVAL OF BENIGN TUMORS OF THE MAMMA WITHOUT MUTILATION OF THE ORGAN.*

By T. GAILLARD THOMAS, M. D.,
SURGEON TO THE NEW YORK STATE WOMAN'S HOSPITAL.

The propriety of the removal of benign tumors of the mammary gland is by no means settled in the minds of surgeons. I presume that it is safe to assume that the general custom is, so long as a tumor is certainly known to be of non-malignant character, to leave it unmolested by the knife. While this may be good conservative practice, as a rule, all must admit that there are many cases which must constitute exceptions to it. Personally, I would even go farther than this and assume the position that, as a rule, benign tumors of the mamma should be promptly removed, and that as an exception only should they be left unmolested by the knife of the surgeon.

Let us inquire into the grounds upon which each of these two positions may be maintained. The tumor being positively regarded as benign, it is thought unnecessary to resort to its extirpation so long as it does not rapidly increase in size, first, because no damage occurs to the general health or constitutional vigor from its mere presence; second, because it is, under these circumstances, considered hardly a legitimate course to expose the patient to an operation which is attended by danger to life; and, third, because the mutilation resulting from the operation is, for obvious reasons, regarded as a calamity to a woman in any period of her existence except that of advanced age.

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* Read before the New York Obstetrical Society, February 21, 1882.

As I have already asserted, my personal experience has led me to dissent from the generally accepted views upon this subject. I have found that the mere presence of a tumor in the breast usually concentrates upon it the thoughts and attention of the patient, impairs her happiness, and renders her apprehensive, nervous, and often gloomy. A great deal of her time is spent in examining the growth, and in comparing notes and asking information concerning it of her female acquaintances, and the result of all this is very frequently to engender a state of mental disquietude and wretchedness for the relief of which a resort to extirpation of the tumor is entirely a defensible procedure. Furthermore, it may be said in defense of operation, that, with our present improved methods, the patient is exposed to slight risks, that the danger of growth of the tumor is removed, and that with this disappears at the same time that of the subsequent degeneration of a benign into a malignant growth. If, in addition to these advantages, we can add the avoidance of all mutilation to the person, it appears to me that we have strong grounds for departing from a practice which has been sanctioned by the advocacy of past times.

The method of operation which I am about to describe is one which I have practiced thus far in a dozen cases, and I regret that I am unable to exhibit some of my patients to the society to-night in evidence of the statement that a tumor of the size of a duck's egg may by it be removed without any resulting deformity to the breast; but all my operations thus far have occurred in private practice, not one in my hospital experience, and I am therefore unable to exhibit my patients as I might have done had their position in life been different.

I would here distinctly state that the operation is entirely inappropriate for tumors of malignant character, and that it is applicable neither to very large nor to very small benign growths, being insufficient for the former and unnecessarily radical in its character for the latter. The growths for the removal of which I have resorted to it have been fibromata, lipomata, cysts, and adenomata, and have varied in size from that of a hen's egg to that of a duck's egg, or a little larger.

The operation is thus performed: The patient standing erect and the mamma being completely exposed, a semicircular line is drawn with pen and ink exactly in the fold which is created by the fall of the organ upon the thorax. This line encircles the lower half of the breast at its junction with the trunk. As soon as it has dried the patient is anæsthetized, and with the bistoury the skin and areolar tissue are cut through, the knife exactly following the ink-line just mentioned until the thoracic muscles are reached. From these the mamma is now dissected away until the line of dissection represents the chord of an arc extending from extremity to extremity of the semicircular incision. The lower half of the mamma which is now dissected off is, after ligation of all bleeding vessels, turned upward by an assistant and laid upon the chest-walls just below the clavicle. An incision is then made upon the tumor from underneath by the bistoury, a pair of short vulsellum forceps firmly fixed into it, and, while traction is made by these, its connections are snipped by scissors, the body of the tumor being closely adhered to in this process, and the growth is removed. All hæmorrhage is then checked, and the breast is put back into its original position.

Its outer or cutaneous surface is entirely uninjured, and the only alteration which has been effected in the organ is the leaving of a cavity which was formerly occupied by the tumor. A glass tube with small holes at its upper extremity and along its sides, about three inches in length and of about the size of a No. 10 urethral sound, is then passed into this cavity between the lips of the incision, and its lower extremity is fixed to the thoracic walls by India-rubber adhesive plaster, and the line of incision is closed by interrupted suture. In doing this, to avoid as much as possible cicatrices, very small round sewing needles are employed; these are inserted as near as possible to the edges of the incision, and carry the finest Chinese silk. After enough of them have been employed to bring the lips of the wound into accurate contact, the line of incision is covered with gutta-percha, collodion, and the ordinary antiseptic dressing applied.

If the glass drainage tube appears to accomplish perfectly the drainage of the cavity, there is no offensive odor to the discharge, and the temperature does not rise above 100°; the tube is in no way interfered with until the ninth day, when the stitches are removed. If, on the other hand, the tube does not appear to perform its function satisfactorily, it is manipulated so as to cause it to drain all parts of the cavity, and warm carbolized water is freely injected through it every eight hours. On the ninth day, when the stitches are removed, the tube is removed likewise.

In my earlier operations, taking it for granted that a depression would mark the location of the cavity left by removal of the tumor, I prepared my patients for this, telling them that they must be satisfied with a slight deformity in consideration of the fact that it would be much less than that which would result from the operation as ordinarily performed. Thus far I have been agreeably disappointed to find that in most cases no depression whatever follows the operation, and in none has it been sufficiently marked to attract any especial attention. The only sign of the operation which remains to mark its performance, if it be done in a neat, careful, and surgical manner, is a delicate cicatricial semicircular line, which is in great degree concealed by the folding of the skin as the breast hangs downward, and a spot of cicatricial tissue where the drainage tube prevented union by first intention.

If a tumor exists so high in the upper segment of the breast as to require a lateral semicircular incision instead of an inferior one, the result would evidently not be so perfect as I have here represented it. Thus far I have met with but one such case, and that corroborates this statement.

In most of the cases in which I have operated I have been induced to resort to surgical process by the extreme mental disquietude which has been created by the existence of a tumor, no assurances of the benignity of which could satisfy my patients, or render them willing to bear with equanimity the suspense of inaction, and thus far the results have been sufficiently satisfactory to make me feel warranted in reporting the procedure as one which is worthy of adoption.

SLOUGHING SARCOMA OF THE UTERUS; SUPPURATIVE SALPINGITIS; EXTENSIVE THROMBOSIS.

BY WILLIAM T. LUSK, M. D.,

PROFESSOR OF OBSTETRICS AND THE DISEASES OF WOMEN AND CHILDREN IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE.

THIS case is of interest from the fact that the diagnosis of sarcoma of the uterus, a comparatively rare condition, was made during life, and from the symptoms toward the close having pointed to intense septicæmia, of which, however, the autopsy revealed no evidence. It was briefly reported at a recent meeting of the Obstetrical Society, where Dr. W. H. Welch, whose remarks are appended, kindly demonstrated the lesions. For the notes of the case I am indebted to Dr. W. C. Stone, House Surgeon.

Kate Burk, aged 45, was admitted to Bellevue Hospital December 21, 1881. She stated that she began to have bleeding from the uterus some five or six months before, quite profuse at times, lasting from ten days to two weeks, after which she would be free from it for a week or more. For the two months preceding her admission the bleeding had been less, but she had had a profuse watery discharge of a very fœtid odor, sometimes passing "lumps of flesh," as she described them. She has rapidly lost strength, and for the past three weeks has been unable to leave the bed. She has had no medical treatment whatever. On admission she is very weak and anæmic; complains of anorexia, nausea, and dyspnœa. Her temperature is 99·5° F.; pulse 120 and feeble. Physical examination shows the existence of mucous râles, both large and small, over the posterior portion of both lungs, which are otherwise normal. At the apex of the heart a systolic murmur is heard, which is not transmitted to the left nor heard behind. There is a venous hum in the neck.

Palpation of the abdomen shows a hard, firm tumor extending upward to the umbilicus and traceable downward into the pelvic cavity. A vaginal examination shows it to be continuous with the cervix. The cervix itself is dilated, and the finger can be introduced beyond the os internum, and comes in contact with a soft, friable mass, situated apparently on the uterine wall, and presumed to be a sarcoma. The sound shows the cavity of the uterus to be about five inches long. The discharge is very profuse, watery in character, and exceedingly offensive. There is marked œdema of the right leg, extending up somewhat upon the abdomen, and a thrombus can be distinctly felt in the femoral vein, extending downward about four inches below Poupart's ligament. Urine clear, acid, of a specific gravity of 1·018; no albumen.

December 23d.—Patient is very weak, and has frequent attacks of dyspnœa, apparently of cardiac origin. The discharge from the uterus is very profuse and watery.

27th.—Is gradually becoming weaker. Temperature ranges from 99° in the morning to 101·5° at night. Ordered hypodermic injections of ergotin, each injection to contain gr. ij of ergotin, to be repeated every other day.

31st.—Discharge has increased in amount, and contains some shreds of tissue; the general condition has improved.

January 2, 1882.—This morning she passed a large mass of slough, and continued to pass smaller pieces all day. These were found not to contain muscular fibers, but small-cell elements in great abundance. The uterus is diminished in size, its position in the abdomen being about two inches and a half lower than on admission. Carbolized intra-uterine douches are now given twice a day.

5th.—On examining the lungs this morning, a spot of consolidation was found in the right lower lobe. General condition weaker.

8th.—This morning the right arm is found to be œdematous, and a thrombus can be felt in the axillary vein.

12th.—Discharge continues very profuse, and still contains shreds of tissue. Condition worse; pulse 140 and weak.

14th.—Is sinking rapidly.

15th.—Died.

Autopsy, January 16th.—The uterus formed a hard round mass, four or five inches in diameter. Its walls were hypertrophied, and it was filled with a very offensive, soft, greenish mass, which proved, on examination, to be a well-marked sarcoma. Suppurative salpingitis was found. Intestines and omentum were bound to the uterus. The right ureter and the pelvis of the kidney were dilated. A hard, white, granular thrombus, with central degeneration, was found in the right ventricle of the heart, and a similar thrombus in the right pulmonary artery. The branches of both pulmonary arteries, throughout the lungs, contained firm thrombi. There was pneumonic consolidation of the right lower lobe. The spleen was a little enlarged; the liver was adherent to the peritonæum; kidneys were normal. There was thrombosis of the right external iliac, left external and internal and common iliacs, quite up to the vena cava, and of the right subclavian.

Dr. Welch's remarks upon the conditions found at the autopsy, which was made under his direction, and upon the specimens, were substantially as follows:

The uterus, as would readily be seen, was considerably enlarged, and presented on its external surface two small subperitoneal fibromata, and in its interstices a few small fibroid growths. The mucous membrane of the uterus was occupied by a sloughing mass, which, examined microscopically, proved to be a sarcoma which had undergone degeneration. Against the supposition that the disease was cancerous was the fact that the neighboring structures were not at all involved. The fimbriated extremity of the left Fallopian tube was obliterated, and its place was occupied by a small collection of pus, of about the size of a walnut. The ovaries were normal. Chronic pelvic peritonitis was manifested in old adhesions between the posterior surface of the uterus and the rectum.

The case was interesting more particularly because of the widespread thrombi in almost all the principal veins of the body, as well as in the right cavities of the heart. The right external iliac vein was completely occluded by a white thrombus; the left common, external, and internal iliac veins, and a number of the small pelvic veins, were also completely occluded by thrombi, which were not organized, although they were quite adherent to the inner walls of the vessels. They were in general of a yellowish-white color, with some red blood stains. The upper portion of the femoral vein and the internal saphenous were the seat of thrombi, and thrombi probably extended lower down, but this it was not permitted to verify by examination. There were also thrombi in the axillary and subclavian veins of the right side, and in the pulmonary arteries, this latter fact being one of special interest. The main pulmonary artery of the right lung was completely occluded by a thrombus, and likewise smaller arteries of that and the left lung.

Had the case not been one of so-called parietal thrombi, the thrombi gradually developing from the periphery to the center of the vessel and occluding it, the patient doubtless would have died a sudden death from almost complete obstruction to the pulmonary circulation. As said before, there was a large thrombus in the right ventricle, situated at the apex. Another point of interest was the fact that the thrombi had not produced any hæmorrhagic infarctions in the lungs, which was to be accounted for probably by their slow formation. The surrounding tissue was healthy, showing that the thrombi probably were not infectious, and had no mechanical or other irritant properties. None of the viscera showed signs of septic infection.

THE CORPUSCULAR ELEMENTS OF THE BLOOD; THEIR ANATOMY AND PHYSIOLOGY, NORMAL AND PATHOLOGICAL.

BY ALEXANDER DUANE, M. D.

(*Concluded from December number.*)

Chlorosis.—Chlorosis is a disease allied to anæmia in that it depends essentially upon a decrease in the corpuscles and hæmoglobin of the blood. But whether this similarity is only an external resemblance, or whether it extends to the intimate nature of the two affections as well, is a question that has excited much discussion. Some have maintained that chlorosis is a disease distinct from anæmia, on the following grounds: 1. It occurs almost without exception in the female sex. 2. It is generally associated with disturbance or irritation of the genital organs. 3. It presents a distinct morbid anatomy. 4. It has characteristic nervous lesions. 5. It is readily curable by the use of iron, while anæmia is often not amenable to this treatment (Moriez, Grellety). On the other hand, it is claimed that the differences in etiology and symptoms are of only subordinate importance, and that the pathological changes in the two affections are really identical (Coupland). From this latter point of view chlorosis is merely a peculiar form of anæmia, appearing under special conditions of age, sex, and exciting causes.

The *causation* of the disease is not certain. According to Virchow, it depends upon the existence of a congenital contraction of the aorta. This, however, is doubted by many, who regard the narrowness of the aorta as the result rather than the cause of the decreased volume of the blood and its deficiency in nutritive constituents. Moreover, the post-mortem discovery of a contraction of the aorta is no proof that the condition existed before death; for the elasticity of this vessel, which is said to be specially marked in chlorotic subjects, may in any case cause it to contract upon its contents after death and assume a smaller caliber than it possessed during life.* Others hold that chlorosis is a disorder of nervous origin. However occasioned, there can be no doubt that certain agents act powerfully as predisposing causes. Besides the presence of a nervous predisposition, which is perhaps an inherited one, anhygienic surroundings and insufficient food, light, and air seem to exert some influence in producing the disease; but by far the greater number of cases can be traced to disordered or arrested menstruation, or to other anomalies of the female genital organs. In women the affection is common enough, and is naturally most prevalent during the period when the sexual function is most active, being especially frequent at the age of puberty. In men it is exceedingly rare, although cases do now and then occur.

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* Lewinski, quoted in "Supplement to von Ziemssen's Cyclopædia," p. 850.

The *morbid anatomy* of chlorosis, as of anæmia, consists essentially of a diminution in the number of corpuscles and in the amount of hæmoglobin. In many cases both are decreased in the same degree, but in other instances the diminution of the hæmoglobin exceeds that of the corpuscular number. Both quantities may fall to one half or one third of the normal. This diminution is sometimes the only change recognizable in the red corpuscles; at other times they present variations in size and shape, such as are noticed in ordinary anæmia (Leichtenstern). The white corpuscles may also be diminished in number, but this alteration is not constant, as some have assumed; on the contrary, Leichtenstern has found an absolute increase in white corpuscles in some stages, and he suggests that this occurrence is perhaps the distinguishing feature of a special stage of the disease. The total volume of blood is probably diminished in the majority of cases of chlorosis. The heart is frequently hypertrophic or dilated, and may be fatty. The other organs may be degenerated, or perhaps show an imperfect degree of development; and the genital passages often present anomalies of structure, especially such as impose an obstacle to the exit of the menstrual fluid.

The *symptoms* are not essentially different from those of anæmia. There are the same pallor of the skin and mucous membranes, indicative of the poverty in blood-coloring matter; the same digestive disturbances, with loss of appetite and often absolute repugnance for food; the same uneasy and fitful action of the heart, associated with the presence of cardiac and venous murmurs; the same difficulties in respiration, especially on exertion; and the same muscular debility and general sense of mental and physical lassitude. One point of difference between the two affections is found in the nervous symptoms, which are quite pronounced in chlorosis, and may take the form of headache, gastralgia, myalgia, or other varieties of neuralgic pain, or may be manifested simply as a condition of general nervous irritability with a tendency to excessive emotional excitement or depression. The digestive symptoms, again, are often peculiar; the appetite is not only defective, but also capricious, and the patient displays a longing for unnatural and innutritious articles of food. These differences, coupled with the anomalies of menstruation or other disturbances of the genital sphere which are generally present, constitute the distinctive peculiarities of chlorosis. They do not appear to us to be sufficiently characteristic to authorize the separation of this disease from anæmia, when the two affections are otherwise so similar in both symptoms and morbid anatomy. Indeed, they appear to be rather subordinate symptoms, dependent upon special conditions imposed by sex and temperament, than the pathognomonic expressions of a distinct disease.

Another point of difference between chlorosis and simple anæmia is that in the former there often seems to be much less disturbance of assimilation, and the patient to outward appearance is fairly nourished or even fat. This may lead to an error in diagnosis, and in fact patients have been regarded as hysterical whom an examination of the blood showed to be chlorotic, and who were promptly relieved by the administration of iron.

The intensity of the symptoms is generally in direct proportion to the extent of the blood change. The course of the disease, while usually chronic, is not always uniform, spontaneous improvement not attributable to treatment having been observed (Leichtenstern).

The *prognosis* is in general a favorable one. There are, however, cases which display an unusual obstinacy and which in spite of all treatment extend unchecked over many years. It has been suggested that it is just in these cases that we are to suspect the existence of a congenital aortic contraction.* Among the more important conditions which may complicate the course of the disease are ulcer of the stomach and, according to Virchow, endocarditis affecting the left ventricle. If the latter lesion is associated with aortic contraction, and so with obstruction to the outflow of blood from the ventricle, the increased intra-ventricular pressure due to this additional complication may cause rupture of the valves and sudden death.†

The *treatment*, in addition to the use of good diet and tonics, the enforcement of hygienic precautions, and the removal of any cause of sexual disturbance which may exist, is limited mainly to the administration of iron, which in this disease exerts even a greater influence than in simple anæmia. Zander, who does not acknowledge that iron has so much power in chlorosis, considers hydrochloric acid a useful adjuvant to the ordinary hygienic and dietetic regulations. Arsenic is also of benefit in some cases, and the inhalation of oxygen has proved of service. The latter agent apparently acts by promoting the processes of nutrition and by stimulating the blood-forming function, as it increases the number of corpuscles, although it has no effect upon the amount of hæmoglobin.*

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* Niemeyer, "Lehrbuch der spec. Pathol.," 10th (Seitz) edition.

† *Ibid.*

Leucocytosis.—Leucocytosis is a term invented by Virchow to designate a slight and temporary increase in the number of white corpuscles. It is a lesion essentially symptomatic in character, and occurs in connection with a great variety of morbid conditions. Thus, as already remarked, it is seen to follow hæmorrhage; it is also found whenever suppuration is going on, and is present in most febrile diseases, and especially in typhoid fever and the exanthemata. In diphtheria, according to Bouchut,† its presence is of prognostic significance, the severe, septic forms of this disease being characterized by an excessive leucocytosis, while the milder varieties present only a moderate increase in the white corpuscles. In fevers the increase in number of white cells is said to be proportional to the amount of tissue-change, not to the height of the temperature. In suppuration, on the other hand, the degree of leucocytosis is directly proportional to the intensity of the inflammation (Hayem). In all cases the origin of the condition seems to be the same, viz., an exaltation of tissue activity resulting in the formation of a number of new and imperfectly-developed cells. In hæmorrhage, it is true, part of the excess of leucocytes present is to be explained by the passage of lymph cells into the blood, but this can not account for an increase in the white corpuscles which is relatively greater than that of the serum itself. Moreover, the changes occurring in the cytogenous organs after a hæmorrhage point to an increased activity in the formation of the blood cells.

The relation of leucocytosis to suppuration has been extensively studied, and is of special interest from a pathological point of view. The fact that the increase in white corpuscles precedes the formation of pus proves, according to Bonne, that this increase is due to a primary stimulation of the blood-forming organs. Since leucocytosis does thus precede suppuration, it may, as already remarked, become useful as a means of diagnosticating the latter, so that we may predict from it alone the approaching conversion of a pleurisy into an empyema or the advent of pustulation in small-pox. Such a correspondence between the appearance of an excess of white cells in the blood and the development of a suppurative process suggests that a relation of cause and effect exists between these two phenomena. And, indeed, since Cohnheim's observations it has been generally held that the formation of pus is directly effected by the accumulation of white corpuscles and their subsequent diapedesis,

* Hayem, "Gaz. Méd.," May 21, 1881.

† "Gaz. des Hôp.," Feb. 18, 1879.

the pus cells being derived from the extravasated corpuscles by successive processes of proliferation and decay.

Some doubt has been thrown on this theory by recent researches in cases of leucocythæmia in which the character of pus cells, as developed in a blister or by other means, was essentially different from that of the white corpuscles circulating in the blood.* In view, however, of the demonstration of the fact of diapedesis in inflammation, these opposing observations are of little value; in fact, they only show that under certain morbid conditions the majority of white corpuscles are incapable of passing through the vascular walls and of forming pus cells, while it is quite possible that the minority of corpuscles which do retain their power of amœboid movement and of diapedesis should escape notice on account of the vastly greater number of inactive cells.

In leucocytosis the white corpuscles are usually increased to three or four times the usual number, although in many instances this limit is very far exceeded. It has been a much disputed point as to just where in the scale of numerical increase the line should be drawn between leucocytosis and leucocythæmia. It would seem, however, incorrect to class as an instance of the latter disease any case in which the increase of white cells, however great, is temporary only, or in which there does not exist the well-defined set of symptoms that belong to leucocythæmia.

Apart from their augmented number, the white corpuscles present few other peculiarities. Ehrlich, indeed, claims that there is an unusual number of "neutrophile" cells—that is, of those which are stained only by a peculiar combination of acid and basic coloring matters. Besides the increase in these "neutrophile" cells, which he regards as early forms in the development of the ordinary white corpuscles, he finds a diminution in the number of "eosiniphile" leucocytes. Owing to a similarity in the causal conditions, a certain degree of anæmia is usually associated with every case of leucocytosis.

Leucocythæmia.—Under this name is described an affection† characterized by the presence of a great excess of white corpuscles in the blood. It differs from the condition just considered in the possession of a special set of lesions and symptoms which stamp it as a disease *sui generis*, and also in the extent and persistence of the blood changes. The latter circumstance alone would show that it is not, like leucocytosis, dependent upon an increase in general tissue metamorphosis; for, while in the latter affection the alterations in the blood keep pace with the constitutional disturbance, and are thus indicative of its gravity, in leucocythæmia they are out of all proportion to the degree of systemic depression. Observers are, however, still in doubt as to the nature of the disease, some maintaining it to be nervous in origin, others holding that its primary seat is in the blood itself, while others still regard it as dependent upon a purely local lesion of one or more of the cytogenous organs. Its origin in the latter situation is inferred from the constant presence of lesions either in the spleen, in the lymphatic glands, or in the bone-marrow; but it is as yet undecided whether to consider these lesions as the cause or the result of the disease. Virchow believes the former to be the case, and certainly a consideration of the character and distribution of the pathological changes seems to favor this view. It has also been questioned whether the disease is not to be ranked among the infectious disorders. Some who hold to this view have maintained that leucocythæmia, like other diseases of this class, is dependent upon the presence of a specific vegetable germ, and the disease has hence received at their hands the designation of "leucomycosis."* But against this idea it has been alleged with force that attempts at propagating the disease by inoculation have hitherto been failures (Nocard). On the whole, the most probable view of the nature of leucocythæmia is that it is in its origin a non-specific, non-contagious, and purely local derangement of one of the cytogenous organs; but that subsequently it becomes generalized in various parts of the body, and is then to be regarded in the light of a constitutional affection. To the discussion of this point we shall return hereafter.

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* Virchow (1853); Neumann, "Berl. klin. Woch.," 41, 1878. Fleischer and Pentzoeldt, "Dtsch. Arch. f. klin. Med.," xxvi, p. 368.

† Perhaps we should rather say, with Gowers, a number of lesions; the excess of corpuscles being only a symptom which is common to all, like albuminuria in Bright's disease.

The *etiology* is obscure. Mosler gives as the chief predisposing causes: intestinal obstruction, intestinal catarrh, syphilis, intermittent fever, and emotional disturbance; while traumatism and exposure to cold may act as direct exciting causes, especially in the medullary form. Under the cases of traumatic origin are classed those in which medullary leucocythæmia followed upon amputation, fracture, or an attack of osteo-myelitis,† and those in which the splenic variety was induced by a blow in the region of the spleen.‡ Of the predisposing causes, intermittent fever seems to have the greatest influence, as, among one hundred and fifty cases collected by Gowers, thirty patients gave a history of this disease, and nine had lived in malarial districts. The author, as well as Neumann, mentions cases which have been preceded by typhoid fever, rheumatism, small-pox, and pneumonia, but that any causal relation exists between these diseases and the subsequent leucocythæmia appears very doubtful. To the effect of syphilis four cases were ascribed, and three others seemed to be the result of intemperate habits. In some instances leucocythæmia appears to have some relation with the sexual processes, it being induced by the occurrence of menstruation, pregnancy, and childbirth.

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* Neumann; MacGillavry. It is not unlikely that the micrococci observed in the blood by these authors are really fragments of the white corpuscles.

† Cases of Virchow, Heschl, and Waldeyer, cited by Neumann, "Berl. klin. Woch.," 1878, Nos. 6 to 10; two cases of Englisch's.

‡ Case of Ponfick's and of Mosler's; see Mosler, *loc. cit.*

The disease occurs about twice as often in men as in women. No age is exempt; it has been observed in an infant on the first day of life,* and in the old man of eighty. The greatest number. of cases, however, is found in the period between twenty and fifty years, and the middle portion of this period is especially affected. In women it is apt to occur somewhat later in life than in men, a large number of cases coming on about the time of the menopause.

The *pathology* of leucocythæmia is eminently interesting. The changes which occur may be divided into those affecting the cytogenous tissues, those developed in the blood itself, and those dependent upon the presence of secondary deposits in the various organs. The changes comprised under the first set are particularly important, not only because they appear to form the essential lesions of the disease, to which the other pathological alterations are secondary, but also because by their diversity they have given rise to the designation of various subdivisions of leucocythæmia depending upon the part which seems primarily affected. In this way we come to hear of a "splenic," a "lymphatic," and a "myelogenous" variety. Of these the splenic form was discovered the first, and for a time was thought to be the only kind. Virchow afterward found changes in the lymphatic glands, which in most cases were associated with a splenic lesion, but which sometimes occurred by themselves. Then Neumann discovered alterations in the bone-marrow which he regarded as constant and as the primary lesions in almost every case of leucocythæmia. While few accede to such an exclusive view of the origin of the disease, it must be acknowledged that changes in the marrow do occur, and that in some cases (though rarely) they form the only cytogenous lesion. Others have described an "hepatic," an "intestinal," an "amygdalic" (or "tonsillar"), and a "cutaneous" form of the disease. But morbid processes developed in the regions indicated by these titles are probably in all cases secondary to a primary change either in the spleen, in the lymphatic glands, or in the bone-marrow. The fact that the latter tissue was not examined at autopsies before Neumann called attention to the existence of myelogenous leucocythæmia, has probably led to the designation of several cases as instances of the hepatic or intestinal varieties, when the real trouble lay in the medullary substance.

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* Welch and Marshall, "Lancet," July 12, 1879.

In the splenic form the spleen is markedly hypertrophied; its consistence is increased, and its weight ranges from five to as high as twelve pounds. Microscopic examination shows a great increase in both cellular elements and trabecular tissue, the enlargement being in most cases chiefly due to hypertrophy of the Malpighian corpuscles (Cornil and Ranvier). In two cases observed by Lodi, however, the Malpighian corpuscles were atrophied. The walls of the arteries passing into the corpuscles present a well-marked infiltration with white blood cells, so as to form circumvascular nodules of embryonic tissue, while the central portion of the Malpighian bodies is filled with degenerated leucocytes. Hæmorrhagic infarcts are often found. The capsule is usually thickened, and may be joined by adhesions to the surrounding organs or tissues. Chemical analysis of the spleen, undertaken in one case immediately after extirpation and before post-mortem changes could set in, revealed the presence of leucin, peptones, lactic and succinic acids, and xanthin.* The latter constituent is regarded by Salkowski as in some degree pathognomonic of leucocythæmia. The peptones are probably derived from the leucocytes which are imbedded in the spleen; the latter elements, it will be remembered, containing a small proportion of these proteid bodies in their composition.

In the lymphatic form of leucocythæmia the glands which are most often affected are, internally, the mesenteric, the thoracic, and the lumbar (retro-peritoneal); externally, the cervical, the inguinal, and the axillary. The enlargement is specially marked in the cortical portion of the gland, and is due chiefly to an accumulation of new lymphoid elements. Besides the lymphatic glands, other structures of the same type, such as the thyroid gland and the tonsillar and intestinal follicles, may be affected, although they are probably never the primary seat of the disease.

When the bone-marrow is affected, two distinct appearances may be presented, which Neumann has described as constituting two varieties of the disease, named respectively the "pyoid" and the

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* Brockendahl and Landwehr, "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," lxxxviii, 3, 1881.

"lymphadenoid" forms. In the former there is a great preponderance of cellular elements, comprising both leucocytes and transition forms of all varieties, which give the tissue the same puriform aspect and the same semi-fluid consistence that are observed in diffuse osteomyelitis. In the second form there is an increase in the reticular tissue, converting the marrow into a gray or reddish gelatinous mass, very like a lymphatic gland in structure and appearance. The marrow which has taken either of these forms is found to have replaced, to a great extent, the ordinary fatty variety, and thus fills not only the interspaces of the cancellous tissue, but also the central cavities of the long bones.

The changes which take place in the blood are always well marked. The characteristic feature is, of course, the great increase in the number of white corpuscles. These are increased from twenty to several hundred times the normal amount. At the same time the red cells are diminished, and to such a degree that the sum of the corpuscles, red and white, never reaches the normal. Necessarily, the relative proportions of these two constituents are much altered—how much, is seen from the following table of 73 cases, borrowed from Gowers: *

Proportion of White Corpuscles to Red.	Number of Cases.
1 : 20 to 10	5
1 : 6 or 7	4
1 : 4 or 5	11
1 : 3	9
1 : 2	12
2 : 3	3
White equal to red	21
White in excess of red	8

The same author states that the relative increase of leucocytes is more marked on the right than on the left side of the heart.

In size the white corpuscles may present no variations; on the other hand, they may be larger or smaller than normal. Virchow thinks that the lymphatic form of the disease is distinguished from the splenic by the preponderance of small, uninucleated white cells in the former case (lymphæmia), and of large multinucleated cells in the latter (splenæmia)—a difference which corresponds to that regularly existing between the lymphoid elements of the spleen and of the lymphatic glands. But this distinction has been invalidated by some observers (Cornil and Ranvier, Neumann), and Ranvier remarks that in lymphatic leucocythæmia the glands themselves may be stuffed with the larger variety of cells, so that the analogy

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* Reynolds's "System of Medicine" (1879), article, "Splenic Leucocythæmia."

upon which the difference was based does not hold good. In a case observed by Rénaut * every variety of size was found, indicating, as he thought, the presence of cells in different stages of development, and the existence of a process of proliferation in the blood. Microcytes have been observed (Henck, Nocard, Mosler). These are probably either free nuclei or fragments of the cell-body of the white corpuscles. Besides the ordinary leucocytes, white cells are found which contain fatty matter, and hence color black with osmic acid (Rénaut, Mosler). Eosiniphile cells (the "granular" leucocytes of Rénaut) are also found, although Ehrlich claims that in leucocythæmia their absolute number is diminished. The power of amœboid movement is in many cases much feebler than usual,† although this is not the invariable rule. According to Nocard, it is especially in the minute cells, which he regards as free nuclei, that this loss of amœboid movement is noticed; while Rénaut finds that both the fatty and "granular" leucocytes are defective in this respect.‡ The red corpuscles, as before remarked, show a decrease in number; and it is said that nucleated erythrocytes, and so-called transition forms between the red and white cells, have been observed. Indeed, Neumann says that nucleated red corpuscles are constantly present in leucocythæmic blood; but Mosler, in some cases which he examined, could find neither the nucleated nor the transition forms in the blood, and Lodi and Ranvier had the same experience.

The chemical constitution of the blood is more or less altered. The fibrine factors are increased to nearly double the normal quantity. There is also an unusual amount of fat. Abnormal constituents may be present, of which the most important are leucin, tyrosin, uric acid, lactic and formic acids, peptones, xanthin, and hypoxanthin. The latter body, however, as well as acetic acid, which has been considered to exist in the blood of leucocythæmia, is probably a post-mortem product. The so-called Charcot's crystals have also been found in the blood by Charcot and Heschl.

The blood when drawn exhibits a whitish tinge (hence Virchow's name of leukæmia = white blood); if allowed to stand, the white corpuscles collect on the surface and form a creamy layer. The specific gravity is diminished, and Scherer asserts that the reaction is acid, although this is probably a mistake. Coagulation, in spite of the increased amount of fibrine factors, is retarded, and it has been suggested that this is due to the presence of an excess of pep-

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* "Arch. de Physiol.," Sept., Oct., 1881.

† Neumann, "Berl. klin. Woch.," 41, 1878; Cafavy; Shann, "Lancet," Jan. 1, 1881.

‡ Rénaut says that these non-mobile and degenerated leucocytes might be taken for pus cells, but, unlike the latter, they still possess the power of division and proliferation.

tones in the blood. When coagulation does take place, the clot is seen to be double, consisting of an upper, whitish layer composed of the leucocytes, and a lower layer made up of the ordinary red cells.

The third great class of lesions in leucocythæmia is constituted by the new growths which occur as secondary formations in various organs of the body. It is a question whether these new growths are the result of a true specific heterogenesis, as Virchow believes, or whether they are due to inflammatory irritation, caused by the diapedesis of the white corpuscles. Whichever interpretation may be correct, they resemble ordinary adenoid tissue in being made up of a delicate connective-tissue reticulum inclosing numerous lymphoid cells. Of all the organs the liver is by far the most frequently affected by these new formations, and is often considerably enlarged from this cause, attaining in some cases a size of four times the normal. In addition to the presence of these tumors and of masses of extravasated leucocytes, the liver also contains localized accumulations of white corpuscles within the capillaries, causing distension of the latter and atrophy of the surrounding hepatic substance. Similar alterations occur, though less frequently, in other parts of the body, especially in the alimentary canal, the kidneys, and the lungs; more rarely in the skin, the retina, and the pleura.

Various symptomatic lesions, such as those indicative of altered nutrition (stomatitis, fatty degeneration), of the existence of an hæmorrhagic diathesis (retinal extravasation), and of serous transudation, are also met with.

This somewhat lengthy review of the etiology and morbid anatomy of the disease brings us again to a consideration of its nature and pathogenesis. And, in the first place, we may remark that a number of facts point to its being originally a local disease of the cytogenetic organs. Such facts are the occurrence of a few cases in which the affection was traced directly to an injury inflicted upon one of these organs, its dependence, in a much greater number of cases, upon a disease (malaria) which induces marked alterations in the same organs, and the presence, in almost every instance, of a lesion of these organs, which precedes in its appearance the development of the symptoms, and whose progress is closely related to the course of the disease. If, in spite of these facts, it is urged that the morbid changes in the spleen, the marrow, or the lymphatic glands are simply the results of an accumulation of lymphoid cells in these localities, and that thus the cytogenous is secondary to the blood lesion, it may be answered that a careful inspection of these morbid changes does not justify this view. So far from presenting a mere increase in lymphoid cells in their interior, the blood-forming organs display distinct alterations of structure; and the evidences of extensive cell-proliferation (nucleated erythrocytes and transition forms) which are found in their substance point to an active derangement in function, rather than to a passive process of accumulation. Granting, then, that the first step in the pathological process is seated in either the spleen, the lymphatic glands, or the bone-marrow, and that the alterations in the blood are secondary, the next question will be, how are the latter effected? In order to give a satisfactory answer we have only to make one assumption, viz., that the primary lesion of the cytogenous organs is of such a nature as to produce a peculiar alteration in their function, which alteration consists in a diminished transformation of the white into the red corpuscles, or, perhaps we should rather say, a diversion of the primitive cells from the formation of bodies of a higher grade (erythrocytes) to the formation of bodies of a lower grade (leucocytes). Thus are produced an anæmia, with all its attendant symptoms, and a leucocythæmia, which in itself seems to cause no very great harm. When, however, the accumulation of white cells becomes excessive, they produce, by the mere mechanical effect of their united bulk, various secondary changes, the latter including especially those localized processes of inflammation and atrophy which occur in various organs as the result of capillary obstruction and of diapedesis. But later in the disease secondary changes take place, which do not admit of this simple explanation, but are rather to be regarded as the evidence of an extension of the specific lesion from the cytogenous organs to remote portions of the body. Such are the new growths of adenoid tissue which occur in the liver and in other situations. When these are found they show that the disease has lost the purely local character which it possessed at first, and has passed into a stage in which it must be regarded as a constitutional disorder, maintained by a repeated process of auto-infection.

It will be observed that the course thus sketched out closely resembles that of a malignant tumor, which, at first localized, afterward diffuses itself by the blood or lymph channels till it has invaded the most remote portions of the body. Especially great is the likeness it bears to lymphadenoma, as regards both origin, diffusion, and histological character; and indeed Nocard, who has studied leucocythæmia extensively in the lower animals, concludes that the two diseases are really the same, holding that the accumulation of white corpuscles in the blood in the one case is only an accidental circumstance, which forms no essential ground of difference.* If, therefore, we accept this view, we are to regard leucocythæmia as a neoplasm of one of the cell-forming organs. Such an idea is quite congruous with the theory which we have expressed in respect to the nature and course of the disease; for, reasoning from analogy, we may readily suppose that a new formation affecting a cytogenous organ may in one case excite a profound alteration in its function, and in the next case produce but little change. Thus, just as jaundice is absent in many cases of cancer of the liver, an increase of white corpuscles may not be marked in some instances of lymphoma of the spleen. Of course, in our present ignorance of the conditions under which the complex process of blood-formation is carried on, we can not say why apparently similar neoplasms will act in this different way at different times. Still, these difficulties form no valid objection to our belief in the identity of the two affections.

But, while retaining this conception of leucocythæmia, we may, by looking at the facts from a different point of view, find out another way by which the blood can be implicated, and a different reason why this implication does not always occur. Regarding the blood as a tissue which is regularly used up and reformed in the cytogenous organs, it is conceivable that a neoplasm affecting the latter may in many cases affect the former also as the result of direct contact, while in other cases the blood, though acting as a carrier of the infective elements of the new growth, is not involved in the morbid process. In other words, the enormous increase of white corpuscles in leucocythæmia represents the development of a lymphomatous tumor in the blood tissue itself. Startling as this view may seem at first sight, it can claim from analogy some evidence in its support. It is the connective-tissue elements of the blood, the white corpuscles, namely, that are so markedly increased; and they are inclosed in connective-tissue spaces (for such in reality the blood-vessels are), bounded by endothelial cells, which, again, are of the connective-tissue formation. Hence the resemblance between leucocythæmic blood circulating in the vessels and a lymphoid growth stuffed with new connective-tissue elements is not so remote as might be imagined. Still, there is this objection to this theory of communication, that no other species of tumor besides the lymphadenoid is known to be thus developed within the blood itself. But, whether we adopt the view that the increase in white corpuscles is due to a direct stimulation of the cell-forming function of the various organs appropriated to that purpose, or that it is the result of a stimulus to proliferation excited secondarily in the blood, it is reasonable to suppose that this increase takes place in the cytogenous organs, where the process of formation is normally carried on; and this seems to be generally the case. In one instance, however, observed by Rénaut and already alluded to, the process of proliferation and division of the white cells was going on in the blood outside of these organs.

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* In the "Arch. Vét.," quoted in the "Med. Record," July 2, 1881.

The sketch which we have just given of the order in which the pathological events of the disease follow one another is quite in accordance with the division which Mosler * makes of the *symptoms* of leucocythæmia. This author distinguishes an initial period of prodromes and local lesions, and a subsequent stage of generalization of the lesions and of leucocythæmic cachexia. The onset of the primary symptoms may be sudden or gradual, and their progress rapid or slow. They can in general be referred to the anæmia which exists, and they include digestive troubles, irregular and feeble action of the heart, as evidenced by palpitation and the presence of the various cardiac murmurs, dyspnœa, especially on exertion, muscular debility, nervous disorders, such as headache, vertigo, and tinnitus aurium, and indeed the whole train of symptoms which we have learned to associate with impoverishment of the blood. But, besides these ordinary signs of an anæmic condition, there are other symptoms which occur early and which are quite characteristic of the disease. Among these early evidences of leucocythæmia is an enlargement of the spleen and the lymphatic glands. In the splenic variety, indeed, the development of the abdominal tumor is often the very first thing that is noticed. Frequently associated with the appearance of this tumor, and sometimes preceding it, there is a sense of fullness or an actual feeling of pain in the side, due probably to the pressure which the enlarging organ exerts upon surrounding structures. Similarly, in the medullary form pain is almost constantly present over the affected bones. The bones may also be enlarged as well as tender; and neither of these symptoms is confined necessarily to the medullary variety of the disease. Of course, in the medullary form it is rare that we can have ocular evidence of the changes taking place in the bone-marrow, such as we can obtain in the case of the more accessible spleen and lymphatic glands; yet in one instance Mosler succeeded in extracting some of the diseased tissue by means of a harpoon, and from its examination diagnosticated the existence of leucocythæmia during life. A further characteristic sign is furnished by the blood, which either from its gross appearance or its microscopic structure gives an early and indubitable proof of the existence of the disease.

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* "Berl. klin. Woch.," Nos. 49–52, 1876.

When the stage of generalization is reached, affections of various organs make their appearance. The liver frequently enlarges, and an evidence of alteration in the performance of its functions is found in the jaundice which sometimes exists. Diarrhœa is very common, and may assume a dysenteric character. We must not, however, be over-hasty in ascribing this occurrence in all cases to a lymphoid deposit in the intestinal walls. In many cases, doubtless, it is due as much to the general blood state as to the existence of any local lesion. In this stage the dyspnœa which previously existed may now be aggravated by pressure due to enlargement of the mediastinal glands or by a growth of new tissue in the lungs themselves. The bronchi also frequently exhibit inflammatory changes, which give rise to cough and heighten the respiratory difficulty. Inflammation, with perhaps the formation of new lymphoid tissue, may invade the structures of the mouth and throat (stomatitis and pharyngitis leucæmica). In the retina, in addition to the hæmorrhages, which will presently be considered, there are often observed a deposition of lymphoid tissue and a resulting specific inflammation (retinitis leucæmica).

Meanwhile the anæmic condition of the blood increases and the symptoms dependent upon this cause are correspondingly intensified. This is especially true of the disturbances of respiration and of the various nervous disorders. The digestive troubles, however, are not often so pronounced as in simple anæmia; the appetite may remain vigorous till a late stage of the disease, and nausea and vomiting are seldom very marked. Moreover, just as in chlorosis and pernicious anæmia, there may be but little emaciation or outward evidence of deficient nutrition. On the other hand, symptoms referable to extra-vascular transudation become prominent. Œdema and effusion into the serous cavities, pleural, pericardial, and peritoneal, are of frequent occurrence, and still more common is the extravasation of blood. As in pernicious anæmia, the latter accident is especially encountered in the retina, but it may also occur in other regions of the body, producing cerebral apoplexy, epistaxis, hæmatemesis, enterorrhagia, and petechiæ. This tendency to hæmorrhage forms one of the more serious symptoms of the disease, and may act to hasten its course toward a fatal termination. In many cases the tendency amounts to an hæmorrhagic diathesis, and then forms an imperative bar to operative interference of any kind.* Moreover, the immediate effect of the hæmorrhage upon the function of the organ in which it takes place may be more or less injurious. Thus, important cerebral symptoms may occur as the result of an apoplectic effusion; and retinal extravasation, whether associated with a specific inflammation or appearing independently, is responsible for the various visual disorders which from their frequency in leucocythæmia constitute a diagnostic symptom of the disease.

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* Of twenty-five patients cited by Mosler, "Ztsch. f. klin. Med.," i, 265, thirteen exhibited this tendency.

A peculiar symptom which has been noticed in a number of cases is persistent priapism. This has been supposed to be due to thrombosis or to extravasation in the corpora cavernosa, but Salzer, who has collected five cases, ascribes it to irritation of the nervi erigentes.

Tissue-metamorphosis is subject to various alterations in leucocythæmia. The urine commonly shows an excess of uric acid; it sometimes contains xanthin and hypoxanthin in unusual quantities, and frequently contains albumen. The latter constituent is, however, not so much an evidence of altered tissue-metamorphosis as of local changes in the kidney or of circulatory disturbances due to cardiac disease. The total amount of nitrogenous excretion is thought to be increased. The amount of carbonic dioxide excreted by the lungs is said to be at its usual point during rest; but when exertion is made the quantity fails to attain the normal of health. The temperature may be elevated and may exhibit irregularly intermittent variations. In many cases, however, no fever can be detected.

The *course* of the disease is different in the different cases, and the duration is correspondingly variable. A few cases appear as an acute affection ("galloping" leucocythæmia). In these the first stage of local symptoms may extend over a few days only.* In other instances the period of preliminary symptoms may be prolonged over a number of years, and the disease runs a chronic course. It is rare, however, that the total duration is more than four years, and the majority of cases (fifty-five per cent.) last from one to three years. Generally, as in pernicious anæmia, the symptoms steadily increase in severity till the fatal end is reached. The approach of death is heralded, in patients who are not cut off by accidental causes, by a condition of the most profound anæmia and by all the evidences of a cachectic state. Gowers gives the following causes of death in sixty cases:

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* Cases of Litten, where cachexia set in after four or five days; of Küssner, in which the duration was only eighteen days; of Immermann and Patterson, in each of which it was six weeks; and of Landrieux. These cases, however, seemed generally to have serious complications which aggravated the symptoms.

Exhaustion		12
Accidents and complications, including:		
Hæmorrhage	17	
Diarrhœa	9	
Cerebral apoplexy	6	
Pneumonia	6	
Rupture of the spleen	1	—39
Intercurrent disease		9

The *prognosis* is bad, although not absolutely desperate. As in pernicious anæmia, it is likely that many reported recoveries from leucocythæmia are merely delusive intermissions in the course of a disease which ultimately proves fatal.

The *diagnosis* is chiefly to be made from an examination of the blood. Apart from this evidence, there is little to distinguish the disease from pernicious anæmia, save the enlargement of the spleen and liver, and still less to mark it off from malignant lymphoma, except perhaps the more rapid course of the latter and its more marked neoplastic character. From severe grades of leucocytosis it is diagnosticated by the absence of a sufficient exciting cause and by the permanence of the lesion in the blood.

The *treatment* of leucocythæmia is partly causal, partly symptomatic. Under the former head are comprised measures addressed to the removal of the cytogenous lesion. Thus, where the disease is dependent upon injury to the bones, or upon osteo-myelitis, Mosler recommends immediate operative treatment as likely to check its further development. In these same cases he advises parenchymatous injections of carbolic acid and the use of quinine in excessive doses. With a similar end in view, he aims to reduce the enlargement of the spleen by the application of the cold douche and the induced current, and by the internal administration of quinine, eucalyptus, and piperin. It seems likely that the beneficial effects claimed for arsenic are partly due to the effect of this drug in diminishing the size of the chronic enlargement of the spleen. Other drugs administered for the same purpose, in both the splenic and the lymphatic varieties, are iodide of potassium (recommended by Englisch in doses of twenty to thirty grains) and ergotin. A more radical mode of accomplishing this end is by extirpation of the offending organ, and, in fact, the operation of splenotomy has been advised and carried out in a number of instances. But the operation is a dangerous one, most of the patients dying of hæmorrhage, and there is no clear evidence that, even if successful, it causes any arrest in the progress of the disease. Acupuncture and galvanopuncture of the spleen were tried by Jäger,* but with no success.

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* "Centralbl. f. d. med. Wissensch.," 19, 1881.

Of the drugs employed to fulfill the symptomatic indications the most important are those which aim to remedy the failure of nutrition. Such are especially iron, arsenic, and phosphorus. These remedies, however, with the possible exception of arsenic, seem at the best to produce only a transient amelioration of the symptoms. In favor of arsenic we have the testimony of Malthe,* who asserts that eleven cases, including one of his own, were cured by its use.

Transfusion of blood has been urged as a means of correcting the anæmic state to which most of the symptoms are due. In the hands of Mosler it has proved successful in several instances.†

In general we may remark that the disease obstinately resists any attempt at treatment; and hence, when any one line of therapeusis is said to have been unusually successful, there is always a suspicion either that the recovery was spontaneous or that the diagnosis was erroneous.

SYPHILITIC DISEASES OF THE LACHRYMAL APPARATUS.

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I. Syphilitic Lesions of the Lachrymal Gland.—Diseases of the lachrymal apparatus due to syphilis have hitherto met with but little attention on the part either of the ophthalmologist or syphilographer. If we consider the lachrymal gland alone, we shall find that scarcely any mention is made of syphilitic lesions of this organ throughout the whole range of medical literature for the past two hundred years. For this there must of necessity be some good reason, and it is found in the fact that a lesion of the lachrymal gland due *directly* to syphilis, and not as a consequence of a lesion in some neighboring organ or structure, has been but once reported.

It is here necessary to bear in mind the importance of distinguishing between two varieties of syphilitic lesions, viz.: between those lesions which are met with directly, or primarily, as it were, in the organ under discussion, and those which occur indirectly or secondarily in the organ as a consequence of lesions in the neighboring parts.

Of lesions due to constitutional syphilis and primarily arising in the lachrymal gland, there are but two cases mentioned in literature, and even these are not clearly settled. Several of the older writers speak in a general way of chronic inflammation of the lachrymal gland, dacryoadenitis, as sometimes due to syphilis; and a case is mentioned by Chalons under the name of "adenitis lachrymalis syphilitica," and reported in the "Preuss. Vereins-Zeitung" for 1859. The patient was in the first year of constitutional syphilis, and was suffering from iritis and some extensive lesion of the skin. Both lachrymal glands became very much swollen, and pushed the upper lids forward. The gland on the right side was more swollen than that on the left side, and produced an appearance of ptosis. There was no pain at any time, nor any sign of active inflammation, and the infiltration subsided, as did all the other symptoms, under mercurial treatment. The inflammation in this case was probably of a plastic character, similar to what occurred in the iris, and such as was to be expected at this stage of the disease. Another case, somewhat similar in character, was observed by Sichel, and has been quoted by Variot, in an inaugural thesis entitled "Contribution à l'Étude de la Dacryoadénite Aiguë," Paris, 1875. Bader says, vaguely, "syphilitic enlargement of the lachrymal gland has occurred" (see "The Natural and Morbid Changes of the Human Eye," London, 1868). On the other hand, Förster says that syphilis affects all the parts of the organ of vision except perhaps the lachrymal gland (see Graefe und Saemisch, "Handbuch der gesammten Augenheilkunde," vi, 1877).

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* Cited in Virchow and Hirsch's "Jahresb." for 1879.

† So, also, in a case of Landrieux's.

It might be conceived that, owing to its situation, the lachrymal gland might become inflamed as a consequence of periostitis of the orbit. The inflammatory process might extend from the periosteum to the fibrous envelope of the lachrymal gland, the one being closely connected with the other, and thence to the trabeculæ in the interior of the gland. One such case has come to the notice of the writer. The patient was profoundly syphilitic, and subsequently died of meningitis and gummy tumor of the dura mater. The lachrymal gland was enlarged and inflamed as a consequence of general inflammation and infiltration of the orbital tissues, spreading from a diffuse orbital periostitis. There was excessive exophthalmus, and the eyeball and entire contents of the orbit were enucleated to relieve the excessive pain. The lachrymal gland was found generally enlarged, the hypertrophy, however, being mainly due to an increase of the connective-tissue elements of the gland, and not to an increase of the glandular structure proper. The lachrymal gland seems to be singularly exempt from inflammatory accidents of any kind. There are very few cases reported, in spite of the enormous activity displayed of late years in the field of ophthalmology. It may be the seat of a neoplastic growth, both benign and malignant, but no case of gummatous infiltration, circumscribed or diffuse, in this region has as yet been reported.

II. Syphilitic Lesions of the Lachrymal Caruncles.—It is conceivable that the lachrymal caruncle might be affected by syphilis secondarily, as in the extension of a simple conjunctivitis, frequently occurring in the early stages of inflammation, or of a conjunctival ulceration from a broken-down papule or tubercle. The caruncle might also become inflamed as a consequence of inflammation of the lachrymal sac, and would probably become involved in cases of caries or necrosis of the lachrymal bone, due to syphilis. The first change would be an hypertrophy, which would probably be followed by atrophy, and perhaps by entire disappearance of the caruncle. But no case of syphilitic disease, occurring primarily in the caruncle, had been reported until Dr. R. W. Taylor, of New York, published an account of two cases occurring in his own practice, in the "American Journal of the Medical Sciences" for April, 1875. These cases are so rare that they will be reported in detail, in almost the doctor's own words.

The first case was that of a man, aged 29, who became syphilitic in the latter part of 1865, having a chancre followed by a general eruption, buccal mucous patches, and rheumatoid pains. His strength became very much reduced, and his health profoundly affected. During the following year he was treated at irregular periods by various physicians for superficial ulcers of the dorsum and sides of the tongue, and severe pains in his joints. Early in 1867 he had a general rupial eruption over the body and extremities, and upon the forehead a string or row of syphilitic tubercles. They were slightly elevated, quite broad, of a coppery hue, and the seat of slight epidermal exfoliation. In the autumn of 1868 he noticed, coincidently with the appearance of his syphilides, a swelling or tumor at the inner angle of each eye. An examination showed each caruncle to be enlarged to four times its normal size, so that they protruded between the closed lids. They were deep red, firm to the touch, and entirely independent of any conjunctival inflammation, and of any disease of the lachrymal sac or bone.

Dr. Taylor's diagnosis was gummy infiltration, in which he was without doubt correct. An operation was subsequently done by an ophthalmic surgeon for their removal, which resulted in considerable deformity.

The second case was that of a man, aged 34, with no distinct history as to the occurrence of the initial lesion, but with a clear history of constitutional syphilitic lesions. In February, 1868, he had a copious rash upon his body, palms of the hands, and soles of the feet, and his scalp had been covered with scabs. These disappeared with proper treatment, and he remained free from eruptions till November, 1869, when some spots appeared upon the arms, hips, one leg, and the scalp. Shortly after this he observed a swelling at the inner angle of each eye. These tumors resembled those in the first case, except that they were slightly broader at the base, and half an inch in height, so that they protruded markedly between the edges of the closed lids. There was no ulceration of the surface, and they were firm to the touch. A careful and persistent use of the "mixed treatment" in a short time produced a diminution in the height of the swellings. They gradually declined in their whole extent, and in ten months the caruncles were reduced to their normal size. Unfortunately, the reduction in size still continued, and resulted in atrophy of the entire caruncle.

These two cases, occurring coincidentally with other late syphilitic lesions, indicate that the caruncles were the seat of a gummy infiltration. Like such growths elsewhere, their course was painless and chronic, and without any signs of an inflammatory character. They followed the ordinary course of gummy tumors and were symmetrical, as is often the case in the late lesions of syphilis.

III. SYPHILITIC LESIONS OF THE LACHRYMAL PASSAGES, INCLUDING CANALICULI, SAC, AND NASAL DUCT.—When we come to consider the lachrymal excretory passages, we find that syphilitic lesions are not at all uncommon, especially in the lachrymal sac and nasal duct. These lesions are manifestations both of early and late constitutional syphilis, and, though they are usually accompanied by some other symptoms elsewhere in the body, these are not usually cutaneous lesions.

Beginning with the canaliculi, including the puncta, we find that the form of conjunctivitis so often seen with syphilitic iritis may spread to the tear-channels in the lids, through the puncta, and cause a catarrhal inflammation, which soon narrows or obliterates the caliber of the canal or of the punctum, and prevents the drainage of the tears. As a result, there is constant epiphora, or overflow of tears, which keeps the edges of the lids and the external surface of the lower lid constantly irritated. This same catarrhal inflammation may extend through the canaliculi to the sac and cause a dacryocystitis, though usually inflammation of the sac originates in trouble in the nasal duct, which has spread from the nose. Another lesion of the conjunctiva or edge of the lid, which may involve the punctum and canaliculi, is a chancre occurring in this locality; and several such cases have been reported. In two cases seen by the writer the punctum and canal were obliterated by the ulcerative action, and more or less epiphora was the permanent result. Another conjunctival lesion, symptomatic of a later stage of constitutional syphilis, which may, and not unfrequently does, involve the canaliculus, is a papular or tubercular syphilide occurring in this vicinity, and generally beginning on the margin of the lid. If no proper treatment of these syphilides be undertaken, they break down, ulcerate, and prove destructive of more or less tissue in their vicinity, and thus may cause complete destruction and obliteration of one or both canaliculi.

As before remarked, inflammation of the conjunctiva and canaliculi may extend to the lachrymal sac and excite a dacryocystitis, at first of a catarrhal character, but which later may become more or less purulent. But this is not a common result; for, though inflammation of the lachrymal sac is not a rare manifestation of syphilis, the course of the disease is usually in the reverse direction, from the nose through the nasal duct into the sac. Moreover, it is not common to meet with a purulent dacryocystitis unless there is present disease of the periosteum or endosteum of the nasal duct, or carious disease of the bony canal, or of the lachrymal bone. In some cases it is possible that the focus of disease started in a periostitis or endostitis of the nasal duct, independent of any disease in the nose, as a result of the constitutional syphilis, and spread to the mucous membrane lining the duct and sac, thus causing the dacryocystitis. This periostitis may, and usually does, tend to caries of the underlying bone, if not properly and promptly treated; or it may be sluggish and chronic in its course, and be accompanied by the development of a subperiosteal gumma, which would entirely obliterate the caliber of the duct. The occurrence of these gummata developed in the wall of the nasal duct is, in the opinion of the writer, not very uncommon. Another source of obstruction in the duct, and which acts as an indirect cause of inflammation of the duct and sac, is the occurrence of a mucous patch on the wall of the nose at the mouth of the duct, which closes the orifice. This the author has seen in two instances, in both of which there was a marked and extensive development of mucous patches in the buccal cavity, and on the vulva and anus.

The obstruction to the course of the tears in their downward flow may occur at any point of the duct, from its union with the lachrymal sac to its opening on the side of the nasal meatus. Critical observation of a large number of cases has led the writer to believe that in syphilitic patients this obstruction usually occurs at or near the mouth of the duct. But, though in the majority of cases the obstruction begins here, it is by no means confined to this spot, but tends to spread upward toward the sac, so that the stricture may in time nearly equal the duct in length. This stricture of the duct, when membranous in character, may remain so to the end, and is amenable to treatment. But, if the periosteal lining or fibrous wall of the duct be involved in the inflammatory process, or the bony wall be diseased, the treatment becomes a much more serious matter, and its duration, under the most favorable circumstances, very chronic. In some instances the duct becomes obliterated, so far as its lining membrane is concerned, its walls having become adherent throughout. Usually, before this stage has been reached, the lachrymal sac has become inflamed, and the dacryocystitis has developed into an abscess and opened externally, just beneath the internal canthal ligament.

The symptomatology of dacryocystitis and stricture of the nasal duct, due to syphilis, differs in no respect from that of the same disease due to other causes. There is first epiphora, or an overflow of tears, more or less marked, then a sense of distension in the neighborhood of the lachrymal sac, followed by a distinct swelling in this region. Pressure with the finger at this point causes an evacuation of glairy mucus or muco-pus through the lachrymal puncta into the conjunctival cul-de-sac. This condition may remain unchanged for an indefinite period, or the low grade of catarrhal inflammation in the sac may assume the acute form, and become purulent; the overlying connective tissue between the external wall of the sac and the skin becomes infiltrated and brawny, the skin becomes adherent, and finally all the tissues ulcerate, the abscess opens externally, and a fistula of the lachrymal sac is the result. As a matter of clinical observation, this is, however, not a common result of syphilitic disease of the duct, unless there be caries of the lachrymal bone, or of the nasal process of the superior maxillary bone. The longer, however, the subacute or chronic stage lasts in the duct or sac, the greater is the probability of the bones becoming diseased, and this is especially so if the patient is in the late stage of constitutional syphilis. Nasal disease may be the only manifestation of the constitutional disease, and not uncommonly is so.

Syphilis, as it advances into the late stages, seems to lose its diffusible properties, and thus to acquire a more energetic and destructive concentration of power, to the injury of whatever organ may be affected. But syphilitic disease of the nasal duct is not always the solitary sign of constitutional syphilis; on the contrary, in most cases it is merely one of a group of lesions occurring in various parts of the body, sometimes connected with the development of gummata, and usually with bone disease elsewhere. Though ordinarily occurring as a late manifestation of syphilis, the lesions in the nasal duct may be precocious, appearing contemporaneously with the first signs of constitutional infection. Clinical observation teaches that disease of the pharynx or palate is usually present at the same time with disease of the nasal duct, but this does not necessarily complicate the prognosis or the duration of the necessary treatment.

Whether syphilis of the duct be precocious or postponed, the course is always about the same, if the case be not submitted to appropriate treatment, from ulcerative inflammation of the mucous membrane lining the nose and duct to carious disease of the bones, and more or less obstruction or obliteration of the caliber of the duct. Mucous patches are much less frequent in the nose than in the mouth or pharynx. They are usually confined to the inner surface of the alæ of the nose, to the septum nasi, or to the anterior ends of the inferior turbinated bones. They are generally visible to the eye, and probably do not occur in the upper nasal cavities. They are almost always erosive in their nature, and may tend to ulcerate superficially, but they do not tend to deep destruction of the tissues. Under proper treatment they cicatrize without leaving any trace of their presence, except in the secondary lesions caused by them in the nasal duct. These lesions may be complete destruction of the mucous membrane lining the duct, more or less destructive ulceration of the periosteum, and consequent caries, more or less extensive, of the bony walls. Here the syphilitic disease attacks the bone in one of two ways: first, there may be congestion, rapidly followed by a molecular destruction of the bone tissue; in other words, ostitis and caries. This form of bone lesion frequently coincides with serpiginous ulceration of the mucous membrane lining the sac and duct, and soon destroys the lachrymal bone and upper end of the nasal process of the superior maxillary bone. With this form of disease there is usually an abundant secretion of ichorous pus through the canaliculi, or through the fistula in the walls of the sac. The secondary process is a pure necrosis, in which the bone becomes more profoundly diseased, and distinct sequestra of varying size are detached. These rarely come away of themselves, but require operative interference for their removal. This form of bone lesion may be a primary one in the superior maxilla, and is the cause of those cases of total obliteration of the nasal duct which are sometimes met with. The destructive process here is much more profound, and the caliber of the duct is obliterated by the falling together or caving in of its walls, and subsequent adhesion of the bony surfaces by inflammatory action.

Another form of syphilitic lesion, which is said to occur in the lachrymo-nasal canal, is an osteo-periostitis gummosa of very rapid development and ending in suppuration. The writer has not seen any such cases, but their occurrence is mentioned by Panas ("Leçons sur les Affections de l'Appareil Lachrymal," Paris, 1877). The development of these gummy growths in the wall of the sac and duct seems also to be proved by the testimony of Galezowski and Larebière. The obstruction in the duct would, of course, be very rapid, owing to the incompressibility of its walls and the small size of its caliber.

One other form of syphilitic lesion of the lachrymal passages remains to be considered, viz.: hyperplastic processes in the bones themselves, which aid in forming these channels, or exostoses and periostoses of the lachrymal bone, and of the bony wall of the nasal duct. One of the first to call attention to these bony outgrowths was Tavignot (see "Journal des Connaissances Médico-chirurgicales," January, 1848). This author states that a lachrymal tumor, followed by fistula, may be caused by a hyperostosis of the superior maxilla, especially of its ascending apophysis. He does not make the necessary distinction between hyperostosis and exostosis, however. He says that this bony outgrowth, be it exostosis or periostosis, does not always occur solely in this part of the superior maxilla, for it has been met with in the angular apophysis of the frontal bone, and even in the lachrymal bone. These exostoses ulcerate and become carious, or the bony walls of the lachrymal canal approach each other, the lining fibro-mucous membrane becomes inflamed, ulcerates and is destroyed, and in this condition the case is irremediable. Carron du Villards also refers to narrowing and obliteration of the nasal duct by periostosis, exostosis, and hyperostosis of the bones entering into its formation (see Himly's "Die Krankheiten und Missbildungen des menschlichen Auges," Berlin, 1843). L. A. Desmarres states that these exostoses almost always occur on the ascending apophysis of the superior maxilla (see "Maladies des Yeux," Paris, 1854). Richet reports the case of a woman, who had had the initial lesion about fifteen years before, in whom two years before there had appeared a swelling at the level of the root of the nose and supra-orbital ridge. He diagnosticated a periostosis of the ascending apophysis of the superior maxilla and nasal bone. In this case the sac was laid open, and an examination showed that the inflammatory process had originally started in the fibrous wall or periosteum, and that the bony growth was a secondary result (see "Thèse de Doctorat," Paris, 1870). Another case reported in the same thesis occurred in the service of Gosselin. Lagneau and Bourgcois have also reported cases, and the former cites Janin as being the first author to report a case of this nature (see "Archives Générales de Médecine," 1857). Demours speaks of an interesting case in his experience, where there was a small exostosis situated at the inner margin of the orbit, immediately in front of the lachrymal sac, which produced constant epiphora, and eventually inflammation of the sac (see "Précis Historique et Pratique des Maladies des Yeux," Paris, 1821).

TREATMENT.—This varies somewhat, according to the stage of constitutional infection and the severity of the lesion. If the latter be a simple inflammation of the lining of the canaliculi or sac, which has spread from a conjunctivitis, which is so commonly associated with syphilitic iritis, nothing more is required than a simple, mildly astringent lotion locally, and the cautious administration of mercury in some form, either as an inunction, one drachm of mercurial ointment daily; or in the form of the mild chloride, grain $\frac{1}{8}$ to $\frac{1}{2}$ every three or four hours; or in the form of the corrosive chloride, grain $\frac{1}{30}$ to $\frac{1}{20}$ three times a day. If iritis be present, the main treatment is directed toward the latter, and no special treatment is indicated for the condition of the lachrymal passages.

If the inflammatory action is more severe, leading to the secretion of a glairy mucus or muco-pus, with a swelling over the seat of the sac, and there is good reason for suspecting a stricture of the duct, from whatever local cause in the nose, do not resort to operative interference until internal medication has been tried faithfully. Ophthalmic surgeons are too prone to slit up the canaliculi and incise a stricture of the nasal duct with a Weber's or a Stilling's knife in cases of syphilitic origin, deeming medical treatment useless in such cases, before even giving it a trial. The use of mercury here must be more prompt, and its effect must be more rapidly produced, or the disease may extend from the lining of the canal to the bony walls. A very excellent method of administering mercury in these cases is to use two drachms of mercurial ointment by inunction upon the inner aspect of the arm or side of the chest, and at the same time give the mild chloride internally in doses of grain $\frac{1}{6}$ to $\frac{1}{4}$ every hour or two, carefully watching for the first symptoms of the action of the drug. In many cases a beneficial effect upon the lesion will be observed on the third or fourth day, and then the mercury may be either entirely discontinued, or given in smaller doses at longer intervals. In many of these cases complete recovery follows such a course of treatment; all signs of inflammation and obstruction in the duct disappear, and the patency of the duct is restored without any incision or probing.

If the case is a chronic one, and there is reason to suspect caries of the bony wall of the duct, or of the lachrymal bone, the main reliance is to be placed upon the potassium iodide, which should be given at first in moderate doses, beginning with ten or fifteen grains, and maintaining it at this dose for a length of time, or rapidly increasing the dose up to the limits of toleration, being guided in our action by the severity of the case and the idiosyncrasy of the patient. Even in cases of long standing, with perhaps a fistula of the lachrymal sac and extensive disease of the bones, this treatment, if rationally begun and patiently persevered in, will in many instances effect a cure without the aid of knife or probe. In some cases of long persistent lachrymal fistula, from a previous abscess of the sac which has opened upon the face in the angle between the lower lid and the nose, the writer has seen the patency of the lachrymal channels restored and the fistula partially closed under persistent appropriate treatment, without any operative interference. Usually, in long-standing fistulæ, the edges of the external opening become indurated and somewhat everted, and in such cases the edges have to be freshened and pared, and brought together with one or two sutures, before adhesion of the external lips of the opening occurs.

In some very protracted or virulent cases no treatment, internal or operative, will bring about a good result. These cases are examples of extensive destruction of bone, in which the caliber of the canal has become entirely obliterated, not because it is changed into a solid cord of connective tissue, but because the walls of the duct have become adherent from destructive inflammation and subsequent atrophy of the bone from caries. This usually occurs in the lower third of the canal, but sometimes this condition of affairs is met with near the point of union of sac and duct. The most that we can expect in these cases is to allay the purulent inflammation in the lachrymal sac by slitting up both canaliculi and washing out the sac with astringent and antiseptic solutions. If, in spite of this treatment, the suppurative process still continues, and the carious process in the lachrymal bone is not extensive, it is better to destroy the sac by the application of some powerful cauterizing agent, such as nitric acid, the galvano-cautery or the actual cautery. If there already exists a lachrymal fistula, the latter is to be laid open to the sac, the sac freely incised, and the cautery applied directly to its interior surface. If there is no fistula, the sac may be opened from the side toward the caruncle, inside the internal canthus, by connecting the incised canaliculi by a long vertical incision, and the cautery applied to the sac, the edges of the opening being held apart for the purpose. This method of operating was first recommended by Dr. C. R. Agnew, of New York. Rather violent reaction follows, which, however, is easily controlled by iced applications; free suppuration ensues, and the cavity generally closes in about three weeks. Epiphora remains for some time, but eventually even this diminishes, and sometimes disappears entirely, possibly from compensatory atrophy of the secreting apparatus.

PRIMARY EPITHELIOMA OF THE TONSIL.

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Cancer of the pharynx, although a somewhat rare affection, is one fraught with such serious results that no opportunity for investigating its nature or devising means for its relief should be lost. That the tonsil should be a favorite point of departure for malignant disease seems, when the anatomical position and structure of that organ are considered, not unnatural. These very qualities, however, which render it liable to attack, afford, on the other hand, the greatest possible measure of hope for a favorable prognosis. For, if a diagnosis could be made before the disease had involved the surrounding tissues, the gland might, in most cases, be extirpated with comparative ease, and by the natural passages, thus avoiding the formidable operation by external incision and decreasing the probability of recurrence.

T. B., aged 60, born in Ireland, a merchant, applied at the Throat Clinic of the Demilt Dispensary June 9, 1881, and gave the following history: He had always enjoyed good health, and, until the present time, had never suffered from any severe illness. There was no heredity of any kind, and no evidence whatever of specific disease. The first symptom noticed occurred in February, 1881, when the patient was seized with a severe pain in the right ear. This pain was pulsating in character. It has continued ever since. There was no pain in the region of the throat, and no dysphagia. The advice of a competent otologist was sought, and treatment, directed to the aural symptoms, diligently carried out for several weeks. No relief, however, was obtained, and four weeks after the appearance of the pain there was noticed an enlargement of the right tonsil. By April this hypertrophy had increased the diameter of the tonsil to about an inch and a half. Ulceration of its surface then began. About this time also he first noticed an external swelling immediately below the angle of the jaw on the right side. Meanwhile the otalgia continued to increase. Lately there has been pain in the ulcerated region, and increasing dysphagia. For the past four months he has steadily and rapidly lost weight and strength.

When examined, June 9th, patient appeared badly nourished; complexion pale and cachectic; expression anxious. Insomnia. Anorexia. Articulation difficult. Voice thick and husky. Breath extremely fœtid. Teeth and tongue thickly coated. Expectoration profuse, purulent, and frequently streaked with blood. For the last few days has had flashes of pain in the *left* ear. Examination of the pharynx showed that the left tonsil was much enlarged and infiltrated, but its surface was still unbroken. Beginning at the right side of the uvula was a deep ulceration of the mucous membrane of the velum palati, which extended upward toward the vault of the pharynx, over the orifice of the Eustachian tube, downward over the seat of the right tonsil to the base of the tongue and the right border of the larynx, both of which were extensively infiltrated. The infiltration extended also into the larynx as far as could be seen by the aid of the laryngoscope, involving the right arytenoid, false cord, etc., and producing distinct impairment of motion upon that side. The right tonsil was entirely destroyed, and in its place was the ulceration mentioned above, which formed a deep, irregular excavation, with a concave, sloughing surface, and edges hard and elevated. Immediately behind the ramus of the right jaw was a hard circular tumor, about two inches in diameter. Its boundaries were not clearly defined. Below and posterior to it was another tumor, about one and one half inch in diameter, and more freely movable.

With such well-marked and characteristic symptoms no doubt could exist as to the malignant nature of the growth, while the appearance of the ulceration and of the surrounding infiltration strongly suggested the probability of epithelioma. Its epitheliomatous character was afterward proved by microscopical examination made by Dr. W. T. Bull, by whom, together with the surgical staff of St. Luke's Hospital, the patient was seen in consultation in order to afford him every possible opportunity for relief. Operative interference was unanimously opposed, however, and he returned to his home, where, after passing through the experience common in such cases, he expired, August 5, 1881, about six months after the inception of the disease.

Aside from its general interest, the foregoing history presents one feature of especial importance, namely, the intense reflex pain in the ear of the affected side, occurring long before any symptom was discovered in the tonsil itself. Indeed, so obscure was its cause that it completely misled a competent specialist, although for several weeks under his direct observation. The writer has seen another case in which otalgia, due to reflex irritation from malignant disease of the pharynx, was treated for a considerable length of time before attention was directed to any difficulty in the throat. Hence the obvious suggestion that, in cases of otalgia of doubtful origin, examination of the pharynx should always precede a positive diagnosis.

Waiving minor considerations, however, the case challenges attention by reason of its extreme rarity. A search of all available literature upon the subject has resulted in the apparent discovery of but three authentic cases of primary epithelioma of the tonsil. These were reported respectively by Cheever, of Boston, and Erichsen and Lennox Browne, of London.

Cheever describes two cases of cancer of the tonsil, in both of which he operated by external incision. From the description which he gives of the microscopical appearances found in his first case there can be no doubt that the growth was a true epithelioma. His second case, however, was evidently of a different nature.

Lennox Browne presented two specimens of cancer of the pharynx at a meeting of the London Pathological Society, one of which is reported to have been a "primary epithelioma of the tonsil." Erichsen states that he has seen one true epithelioma of the tonsil.

While unusual care has been expended in an unsuccessful search for cases similar to these, it can not be denied that their scarcity may be accounted for by the confusion which has prevailed as to the nomenclature of tumors. The terms "encephaloid," "scirrhous," "medullary," "cancerous," etc., as formerly used, are vague and uncertain, and convey no definite idea of the precise pathological conditions existing in any given case. Hence it is that, although some of the cases recorded under the general names just quoted may have been true epitheliomata, still, accurate description of their nature, according to the accepted methods of modern pathology, is wanting, and we are obliged to base a positive knowledge of the subject upon a foundation too slender to admit of any general deductions.

To sweep away all other records on the ground of unreliability might be considered unwarrantable and obviously unfair. A tabulated statement of all cases of malignant tumor of the tonsil which the writer has found on record, described under the old nomenclature, is therefore appended, together with a bibliography of the subject, part of which is taken from the valuable and exhaustive article of Poland, referred to below.

Lebert—total cases of cancer,	9,118 ;	primary of tonsil	3
Sibley— " "	520	" "	6
Baker— " "	500	" "	2
Total	10,138		11
Among 30,000 general cases of throat disease, Lennox Browne saw primary cancer of the tonsil in			6
Velpeau saw, all told			5
Morell Mackenzie saw, all told			7
Cheever, Erichsen, and Bryant, each 2			6
Lobstein, Roux, Burnett, Houel, Désormeaux, Meissner, and Lawrence, each 1			7
Total			42

Chassaignac and Maisonneuve have both seen several cases, but they do not state the number, and several unpublished cases have occurred in this city within the past eight years.

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THE PATHOLOGY AND CLINICAL MEDICINE OF THE PAST, AS COMPARED WITH THAT OF THE PRESENT.*

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IT would seem not altogether inappropriate, at this early stage of our organization as a Pathological and Clinical Society, in view of our present knowledge of the several branches of study which constitute in this modern era what is known as the science of medicine, to call your attention, for the short limit permitted me in an essay of this kind, to what little is actually known of its history in that remote period preceding by some centuries what is now termed the Christian era, that we may, if possible, be able to draw some slight comparison of the pathology and clinical medicine of the past with that of the present. In my effort to accomplish this I shall divide the 4,000 years of which history is cognizant into four distinct periods: the first dating from the earliest authentic records to the establishment of the great Alexandrian school under Ptolemy Soter; the second, from this date to its extinction by the Mohammedan power during the seventh century; the third, thence to the revival of letters in the fifteenth century; and the fourth, from this date to the present time. The first, which I shall call the period of antiquity, begins with the first Egyptian dynasty.

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* Read before the Staten Island Clinical Society, October 8, 1881.

Some knowledge of medicine, crude and imperfect though it undoubtedly was, and some clinical experience in the treatment of diseases, would appear, according to Sir Gardner Wilkinson, to have antedated even history. There is reason to believe, from authentic records but recently obtained from Eastern sources, that Egypt was the first of the earlier nations to cultivate the art.

The more recent discoveries of papyri rolls inclosed in the wrappings of mummies from Egyptian tombs, or unearthed by the excavations of the ancient cities of the Nile, and the acquirement by archæologists of a more accurate knowledge of the hieroglyphic language of that prehistoric land, have enabled moderns to obtain a clearer and more definite comprehension of the institutions, laws, and customs of that ancient and celebrated people, together with many interesting as well as curious facts concerning a special order of the Egyptian priesthood represented by the practitioners and students of medicine and surgery.

The necropolis of Memphis, that of Heliopolis, and that of Thebes, have been the chief sources whence reliable records of the civilization of this remote period have been brought to the light of modern knowledge, and whence much, that half a century ago could alone be ascribed to tradition, has attained to a well-grounded claim as being faithful history.

From these ancient rolls has come to us something of enlightenment as to the existence, even at that early day, of schools of medicine and surgery, and of a distinct and learned order of the priesthood, who, acquiring there a thorough knowledge of the then understood principles of medicine, practiced clinically, with more or less success and skill, among all classes of the Egyptian people. Evidence of the care expended by the earliest Egyptian dynasties upon the education of those of the priesthood whose talents and abilities seemed peculiarly adapted to the practice of medicine is curiously illustrated in a medical papyrus now in the possession of the Berlin Museum, and written during the reign of Rameses II, which contains an extract copied from a very ancient roll discovered during the reign of Usaphidas, which relates that "Athothis, the successor of Menes, of the first Egyptian dynasty, founded a medical school at Memphis, and, being himself a physician, wrote concerning the anatomy of the human body." Diodorus Siculus says of this priestly order that "their medical knowledge was very considerable, they being precluded from the exercise of any priestly function whatever save the practice of the healing art." We also learn from the medical papyri just referred to that in the eleventh century before the Christian era Rameses I laid the foundations of a great seat or temple of the priesthood, and that his son and successor, Seti I, continued and completed the work, adding thereunto what afterward became a very celebrated school of learning, in which all the special branches of study, inclusive of those of medicine and surgery, were imparted, by special teachers of high rank in the priesthood, to their students or disciples, at the personal cost of the king. Having attained to the highest grade in their class, and been honored with the dignity and degree of Scribe, about equivalent to our degree of Bachelor of Arts, they afterward practiced their calling at the expense of the government, and under the supervision of the High Priest, from their residence within the limits of the temple.

This university, according to Herodotus, was situated on the west bank of the Nile, near the necropolis of Thebes, and was established by Seti I, in the expectation that it might equal if not excel the great seats of learning already existing at Memphis and Heliopolis, and with the hope that Thebes, which under his reign had become the royal capital, might likewise become the head of the Egyptian schools of learning. Poole states that the remains of this university still exist at Thebes, being now known as the Temple of Abd-el-Quinah, and that it was from the immense library of papyri rolls, numbering several thousands, found here, that much of our knowledge of the medical practice of that remote period has been obtained.

Notwithstanding the efforts of Seti, the chief medical school of Egypt was, and continued for some centuries to be, the great Hall of the Ancients at Heliopolis. This university seems to have borne about the same relation to those of Thebes and Memphis that our medical colleges under the recently established system do to the literary institutions of which they constitute a higher grade.

We are told by Ebers that physicians, like priests, lived on the income from their landed property, from the gifts of the king, the free contributions of the laity, and a share of the state revenues, to which, as members of the priesthood, they were entitled. No fees whatever were demanded from their patients, but it was not uncommon for the priestly physician to make the recovery of the sufferer conditional on certain gifts to be offered to the temple.

That some slight knowledge of anatomy and clinical medicine prevailed prior to the reign of Rameses I, the papyri records in the London and Berlin museums furnish satisfactory evidence. The acquaintance of the physicians of the time with the former was necessarily confined to what could be derived from a comparative examination of the bodies of living and dead animals that were not classed as sacred, but it is certain that they possessed a fair comprehension of the relations of the several parts of the human skeleton, as also of those of some of the internal organs, notably the stomach, bowels, and bladder; but the study of this important branch of the science of medicine was rendered almost entirely speculative by the strict prohibitory laws of the priesthood, which forbade Egyptian physicians either cutting or mutilating the bodies of the dead, a violation of which subjected the delinquent to no less a punishment than that of death. This, however, we learn from Diodorus, did not apply to the class called "Paraschitis," the lowest of the order of Kolchytes or embalmers, who were in reality the only operators in the autopsies necessary to the process of embalming, and who by virtue of that occupation, which was usually hereditary as well as compulsory, became outcasts, any contact with whom was pollution requiring the services of the High Priest for purification. It was also an offense against the Egyptian law for a medical teacher or his disciple to open or examine even the bodies of animals, lest some of those classed as sacred should run the chance of mutilation, but Ebers tells us in his "Notes on Egypt" that a violation of this law was not infrequent, and that vivisections as well as dissections were occasionally indulged in surreptitiously, even within the limits of the temple.

The important physiological question that puzzled the learned of that early period had reference to the special organ or seat of the soul, wherein the spirit or essence was generated that conveyed thought, will, and sensation to the surface and extremities, and a papyrus roll of the collection in the possession of the London Museum records the fact that a descendant of the medical family of Nebsecht, during the reign of Rameses II, a contemporary of Mesu, or Moses, performed vivisections on rabbits, to the extent of satisfying himself, though he did not publicly announce the fact, that the brain was the seat of the soul, the fact having subsequently been obtained from papyri manuscripts in the folds of his mummy, taken from the necropolis of Thebes. There seems to have been no comprehension whatever of a nervous system other than is dimly suggested in the records just referred to, nor of the function of the heart and blood-vessels.

Surgery at that period, as we are informed by Diodorus, was generally practiced as a specialty, consisting chiefly in the medication of wounds, the application of extension to the reduction of dislocations, a rude but not altogether ineffectual method of treating fractures with medicated bandages, and the occasional use of counter-irritants and the cautery. Both the London and Berlin papyri refer to the flint knives used at that time in all surgical operations, which proves conclusively that the minor surgical operations were not entirely unknown to the earlier Egyptian surgeons. Surgery at this enlightened period, though by no means practiced with the skill and successful results of to-day, had not descended to the grade of a barber-shop, as it subsequently did during what has been termed the "dark ages."

The Egyptian practice of medicine consisted chiefly at this time in the application of a pretty thorough knowledge of the medicinal virtues of most of the native plants of Egypt to the relief or cure of the various diseases incident to a dense population, peculiarities of climate, and the habits and customs of the people. As far back as history goes we find records of devastating scourges. Destructive pestilences swept over all the nations of the East at various periods between antiquity and the middle ages, but as to their pathology before the Christian era no very clear ideas have been handed down to us. Fevers were divided into maligna, continua, putrida-ardens, pestilens, bellica, castrensis, and petechialis; and Chambers states that a pestilence referred to in Zechariah and Ecclesiastes as ozanem was undoubtedly the disease which modern pathologists term cholera. Diphtheria also devastated Egypt, Syria, and the East long before the Christian era, as malum Ægyptiacum, and its pathological characteristic of putridity is distinctly referred to in the medical papyri before mentioned as in the possession of the Berlin Museum. Variola also prevailed during this period as the bubo plague, if we may credit Procopius, who gives a description of an epidemic of the scourge, occurring during the Ptolemaic dynasty, which devastated Egypt and Peloponnesus. In the writings attributed to Moses we find references to a certain kind of clinical experience of the priesthood in the treatment of the then prevalent diseases among the Jews, especially as to leprosy. This treatment consisted chiefly in a compulsory attention to strict hygienic rules and enforced isolation. This was the more readily carried out, in that the Jewish priests, like those of the Egyptians, were the only authorized practitioners of the healing art.

Such, with but little variation or improvement, represents the pathological knowledge and clinical experience of antiquity to the establishment of the Alexandrian school under Ptolemy Soter, if I may except a reference by Ebers to a record in one of the Ebers papyri of an operation performed by an eminent Egyptian priest-surgeon, named Naphetys, for the removal of a cataract from the

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eye of the queen-mother of Cambyses, the Persian king, about five hundred years before the birth of Christ.

In the mean time Chiron, the centaur, had introduced the arts of medicine and surgery among the Greeks, who were not slow in pushing their researches into the forbidden fields of anatomy and physiology, to an extent before unknown; and upon the accession of Ptolemy to the Egyptian throne many of their most learned in all the branches of literature were attracted, by his liberal administration and devotion to science, to Alexandria, where they established the foundation of the great literary school of that name. This period, which I shall call the Alexandrian period, is renowned as having given to the world Hippocrates, the second of the medical family of the Heraclidæ. Born, according to Soranus, 460 years B. C., he may well be regarded as the founder of a distinct school of medicine, not alone from the fact of his having more carefully studied and more accurately recorded the pathology of that early period, but because he was the first of the order of the priesthood who dissociated medicine from priestcraft and the arts and mysticism of a thousand years of priestly dominion, and established it upon the positive basis of scientific research. His mind revolted at the idea of the use of charms, amulets, incantations, and all the devices which the priesthood for centuries had thrown around the practice of medicine, and, under the influence of the teachings of Socrates, Plato, Æschylus, and many other of the renowned free-thinkers of the time, he labored faithfully for the emancipation of medicine from the superstition of the age in which he lived. He had a great master in the philosopher Democritus, the learned author of the atomic theory, and was through his influence and aid enabled to establish several asclepias, or hospitals, at Athens for the treatment of the sick and disabled poor. These, we are informed by Pliny, were very carefully conducted, and possessed a curious system of case-books in the form of votive tablets left by the patients, upon which were recorded the symptoms, treatment, and result of each case. The respect in which the dead body was held by the Greeks, as by the Egyptians, precluded his making dissections; hence his knowledge of anatomy and physiology was exceedingly vague, and the most of what we know of it is in connection with the works he has written, and which have measurably been handed down to us, giving his clinical experience in his hospitals and among his patients, among which are those on "Ancient Medicine," "The Epidemics," "The Articulations," "On Fractures," "The Instruments of Reduction," "The Instruments of Surgery," "On Injuries of the Head," etc., Greek editions of which were published as late as 1526 by Asulanus of Venice

Hippocrates based his principles and practice on the "vis medicatrix naturæ." He was not merely an expectant physician, as Sydenham puts it, but, according to that author, believed in "the support of enfeebled and the coercion of outrageous Nature," and largely employed powerful medicines and bloodletting, both ordinary and by cupping. He was instrumental in establishing the theory, which held sway for so many centuries, of critical days in disease, and was also the author of the practice of succussion for the detection of fluids and their nature within the thoracic walls, and the more general practice of trephining for injuries of the head. His sons, Thessalus and Draco, after his death founded what was known as the Hippocratean or dogmatic school, which professed to set out with certain theoretical principles derived from the generalization of facts and observation upon which they based their practice. Aristotle, as we learn from Grote, was undoubtedly the first discoverer of the heart's function as a blood propeller, but it is a doubtful and interesting question, according to Dewes, whether he ever dissected the adult human subject; but that he did so with the fœtus and the lower animals is distinctly shown in his work entitled "Animal Researches," wherein he declares that the blood proceeds from the heart, and not from the head, as had for centuries been generally believed.

Dissections of the human subject—from the time of the great professors of anatomy and surgery, Erysistratus and Herophiles, of the medical school of Alexandria—were thenceforward practiced in a quiet way through several centuries. Some idea of the functions of the brain as the source of the nervous system, of the heart, lungs, and kidneys as depurators, began at this period to dawn upon the minds of the searchers after facts. Surgery progressed rapidly, including many of the larger, or what are now called capital, operations, notably the Cæsarean section, amputation, lithotomy, and the operation for cataract. The first Roman surgeon of real merit was Celsus, who flourished about the Christian era, who first recommended the application of ligatures to bleeding arteries to restrain hæmorrhage. An instrument for breaking down stones in the bladder was also invented and successfully applied by Ammianus, an Alexandrian surgeon, about a century and a half after the Christian era, as well as laryngotomy, tracheotomy, and embryotomy by Paulus Ægineta in the seventh.

The third period, ranging from the extinction of the Alexandrian school to the revival of letters, some eight centuries, is marked by no special progress in pathological knowledge or clinical medicine. The first clear description of variola was written by Rhazes, an Arabian physician, during the ninth century, his theory being that small-pox was the expression of a ferment essential to all men. Epidemics of this disease assumed terrible dimensions during the crusades, and finally invaded England in the thirteenth, and Germany toward the end of the fifteenth century. No matter, says Curschmann, how assiduously physicians labored to discover a method of treatment, none of them accomplished a result worthy of mention. Of the resignation to the disease in the middle ages a proverb of that time gives the best proof: "From small-pox and love but few remain free."

Hirsch maintains that measles prevailed, and was both recognized and described by Rhazes under the name of Hasbak; but many other acute macular exanthemata were confounded with it, and its characteristic phenomena are therefore rarely recognizable in the descriptions, the best having been furnished by Sydenham in the seventeenth century; but even he did not distinguish it with sufficient accuracy from scarlet fever.

The first extensive epidemic of the plague occurred during the reign of Justinian, about the middle of the sixth century. Procopius, who wrote concerning it, declares it not to have been contagious. The principal pathological phenomena observed were enlargement and suppuration of the lymphatic glands, especially of the groin, death undoubtedly resulting in most instances from septicæmia, the mortality, according to Reimarus, ranging between sixty and ninety per cent. As to its treatment, like that of variola, but little was ever accomplished that was at all satisfactory to either physician or patient.

The fourth period, or that of the revival of letters, began with the sixteenth century, in which Harvey, the bold announcer of the capillary circulation, was born. This important discovery, entailing such far-reaching results to medical science, dates from 1616, the year rendered especially memorable by the death of Shakespeare. Harvey delivered his first course of lectures in St. Bartholomew's Hospital, presenting therein, as we learn from Dr. Willis's compilation, his views concerning the movements of the heart and blood. The way to Harvey's great work had already been paved by the discovery of the valves in the veins and by that of the lesser circulation—the former due to Sylvius and Fabricius, the latter to Servetus. In his treatise Harvey proves: 1. That it is the contraction, not the dilatation, of the heart which coincides with the pulse, and that the ventricles, as true muscular sacs, squeeze the blood which they contain into the aorta and pulmonary artery. 2. That the pulse is not produced by the arteries enlarging and so filling, but by the arteries being filled by blood and so enlarging. 3. That there are no pores in the septum of the heart, so that the whole blood in the right ventricle is sent to the lungs and round by the pulmonary veins to the left ventricle, and also that the whole blood in the left ventricle is again sent into the arteries round by the smaller veins into the venæ cavæ, and by them to the right ventricle again, thus making a complete circulation. 4. That the blood in the arteries and that in the veins is the same blood. 5. That the action of the right and left sides of the heart, auricles, ventricles, and valves, is the same, the mechanism in both being for reception and propulsion of liquid and not of air, since the blood on the right side [*sic*], though mixed with air, is still blood. 6. That the blood sent through the arteries to the tissues is not all used, but that most of it runs through into the veins. 7. That there is no to-and-fro undulation of the veins, but a constant stream from the distant parts toward the heart. 8. That the dynamical starting-point of the blood is the heart and not the liver.

Pathological research advanced rapidly under the influence of Harvey's all-important discoveries. Avicenna, the most celebrated writer of the eleventh century, had already given the world, in his "Canon Medicinæ," a cyclopædia of all that was known up to his day of pathology and clinical medicine, but that knowledge was, in a really scientific view, largely supposititious. The discovery of the circulation, and a thorough comprehension by scientists of the influence it must necessarily exert upon the pathology of disease, stimulated the earnest students of this comparatively modern period to a closer examination into the minute anatomy of all the organs of the body. The microscope, weak and inefficient as compared with the powerful instruments of to-day, began to throw new light upon anatomical and pathological investigation. Under the influence of this scientific sun the diagnosis of pathological conditions hitherto unappreciated and unknown became clear and positive. Four thousand years or more had been expended in reaching the microscope, and all other discoveries in science had necessarily hinged upon this. From this date progress in every scientific branch is rapid and effective. Chemistry is gradually divorced from alchemy, and lends its aid to pathological investigation. Clinical medicine is fortified by new and important additions to the materia medica. Cinchona, discovered in 1638, revolutionizes the treatment of intermittents, and paves the way for the final chemical isolation of its several salts. During the early or first century of this period, the College of Surgeons of London and that of Edinburgh are founded. Surgery progresses under the teachings of Ambroise Paré, who first dispelled the idea that gunshot wounds were of a poisoned nature. Contemporary with him were Young, who first performed the flap operation in amputations; Frère Jaques, who has the merit of having advanced the operation of lithotomy from a tearing to a cutting one; and Rau, one of the most successful lithotomists of his or the succeeding century.

The clinical medicine of that portion of this period represented by the nineteenth century has been rendered more effective by the discovery and application, by Edward Jenner, in 1798, of vaccination as a preventive of small-pox, removing variola, for all future time, from the class of devastating scourges. Jenner began his examination into the merits of the traditional belief of the country people in his neighborhood with reference to the protective power of the kine-pox as early as 1776, publishing his first paper on this subject on the date just referred to. Thence through the early part of the present century the method suggested by him was gradually introduced throughout the civilized world.

Typhus, cholera, the plague, yellow fever, scarlet fever, and diphtheria, are the most important of the contagions prevailing during this period, and of the first of these Ireland seems to have been the most prominent birthplace. Siebert says that there is no exact scientific fact favoring a purely organic poison for this disease, and yet all late authors agree that it is spread by a typhus germ. Probably one reason for this disagreement is the fact that the typhus of the early portion of this period covered a group of what are now regarded as distinct diseases. Sir William Jenner in England, and Griesinger in Germany, aided largely in establishing the pathological distinctions between the different forms of typhus, classifying them as typhus proper, typhoid, and relapsing fevers. The plague has occurred at several intervals in different localities, from 1665 in London to 1871 in Persian Kurdistan, the only treatment for which, that modern science has revealed, having reference to the improvement of the sanitary conditions of these localities, the same applying with equal certainty to cholera and yellow fever.

It would take much more time and space than the limits of this paper will permit were I to enter into the details of the progress made during the last half century in pathology and clinical medicine. This is demonstrated: 1st. In the germ theory that all infectious and malarial diseases are based etiologically upon living germs, with a reproductive power measured only by certain required conditions and the presence of a certain characteristic pabulum. These given, their propagation may be *ad infinitum.* 2d. In the establishment of the fact that the lymphatic system and its associated glandular ganglia are the chief factors in the causation of localized foci of disease in strumous, cancerous, rheumatic, and various other diatheses. 3d. In the discovery of the remarkable abnormalities in the composition of the urine in certain diseases of the liver and kidneys, and the influence of the latter in the causation of compensatory lesions in distant organs and functions.

With regard to clinical medicine involving the etiology, symptomatology, diagnosis, and treatment of the diseases of this century, the advance has been rationalistic, and based upon cause and effect. As regards the latter, the object has been and continues to be an alterative one; the purpose, to employ remedies to alter or change existing conditions of an abnormal character, by a specific influence on the nerve centers or their peripheral termini, to normal, physiological, or healthful ones. This epitomizes the condition of the pathology and clinical medicine of to-day, and gives ample scope for comparison with that of the past. Diagnosis—by the more general use of the microscope; of the thermometer in the determination of diseased conditions involving an increase of the temperature of the body; of auscultation, palpation, and percussion as aids in the detection of like conditions in the thorax; of the ophthalmoscope and laryngoscope—attained to the satisfactory advance of which the term diagnosis is the concise expression. The isolation by chemistry of the medicinal principles of most of our foreign and domestic drugs, the discovery of the anæsthetic properties of ether and chloroform, in 1846 and 1847, by Morton and Simpson, and the gradual discovery of new and important therapeutical virtues of drugs, have largely advanced therapeutical results, both in medicine and in surgery. The ancients were by no means unacquainted with the anæsthetic properties of the juices of certain plants, of which there is abundant evidence in the mention made by Homer of this special effect of nepenthe, and the reference by Herodotus to the practice of the Scythians of inhaling the vapor of Indian hemp with the view to producing intoxication, and particularly the allusion by Dioscorides and Pliny to the employment of mandragora as an anæsthetic in surgery. The lithotrite, invented and successfully applied a century and a half after the Christian era, has only within recent times, under the teachings of Civiale, taken its place again among the important instruments of conservative surgery. The urethrotome, the uterine scoop, the galvanic cautery, to say nothing of the metallic indicator, of which we have but recently heard so much, and, above and beyond all, the introduction of the antiseptic treatment in operative and clinical surgery, are discoveries of to-day only, and furnish ample evidence of our comparative progress in the knowledge of medicine, and its successful application to the relief of disease. Knowledge, however, is progressive. At the present rate of scientific discovery, what may not be attained to in the centuries to come? Let us hope that science and literature may never again languish as in the past ages of moral and intellectual darkness, and that the future chronologist and archæologist, in his retrospective view of the civilization of the nineteenth century, from his standpoint of two thousand years yet to come, may find no gap of centuries covered by the dark pall of priestly craft and ignorance. Rather may the generations of the future attain to the acme of knowledge, and become not alone wiser but better thereby.

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Editorials.

SOCIETY WORK AND SOCIALITY.

We have had a good deal of satisfaction, and no little amusement, in perusing Dr. Cotting's gossipy reminiscences of the Obstetrical Society of Boston.* It seems that the society was founded toward the close of the year 1860, and it is said to be the oldest society devoted to obstetrics in this country. Its early career was not altogether prosperous. Some of its founders appear to have entered upon the work in a doubting state of mind, one of them even going so far as to suggest that the meetings be held on the fifth Monday of such of the months as happened to have five Mondays. The place of meeting, the "Medical Rooms in Temple Place," seems to have been as chilling as the croakers could have wished, and it was not uncommon for the few who attempted to attend a meeting to find the doors closed. On one such occasion two dutiful but disappointed members sat down *super flumina* (or, rather, on the stone door-steps), and put their heads together to devise a plan for lifting the society from the languishing state that had been the only result of the enthusiasm and energy displayed by a few of its members.

The sturdy pair came to the conclusion that the chilling air that clung round their society could best be dispelled by tempering the dry formalities of the meetings with what is known, in the words of the worthy Chadband, as "refreshment" ("bivalves" are specified). An attempt was made forthwith to carry this plan into effect; but even this genial effort was looked upon askance. Bostonian science was austere in those days, and there were not wanting those who mocked at the weakness of poor physical nature in its clamor for diluents. But ginger proved to be "hot i' the mouth," after all, and the supper feature finally triumphed. From the time of its systematic adoption dates the society's prosperity.

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* "Historical Sketch of the Obstetrical Society of Boston." By Benjamin E. Cotting, A. M., M. D. (Harv.). Boston: David Clapp & Son, 1881.

This history is almost the counterpart of that of the New York Dermatological Society, even to the raillery of some of the latter's members at what they called a "victuals and drink" society. Of both these organizations it may be said that their usefulness has been past all detraction since they entered upon the course that alone seems suitable to small special societies. A large body, embracing the whole range of medicine, is likely enough to draw full meetings in a public hall, but it can scarcely be doubted that better work is done, on the whole, by the smaller societies. There are many reasons why this should be so; they will suggest themselves to any reflecting mind, and we need not now allude to them. It is not yet the fashion with us to bestow the name of a town upon a society that admits men to membership from all parts of the country, like the Obstetrical Society of London. Until we come to that, the special societies must remain small and, to a certain degree, devoid of the enthusiasm that numbers beget. Their work must continue to be of a somewhat peculiar sort, and it must be stimulated by some associated attraction. Dr. Cotting's summary of the more noteworthy labors of the Boston society only goes to show how corporate asphyxia may thus be overcome. By all means, then, let us take thought before we act on the suggestion, occasionally heard, to transform some of our private societies into public ones.

Reviews and Literary Notes.

Eczema and its Management. A Practical Treatise based on the study of two thousand five hundred cases of the disease. By L. DUNCAN BULKLEY, A. M., M. D., Attending Physician for Skin and Venereal Diseases at the New York Hospital, Out-Patient Department, etc. New York: G. P. Putnam's Sons, 1881. Pp. x–344. [Price, $3.]

THE author, who is well known as the most copious contributor to dermatological literature in this country, has given to the profession in this volume the bulkiest monograph on eczema in the language. It purports to be the outcome of the writer's personal views and experience derived from the study of 2,500 cases of the disease. It can not be denied that Dr. Bulkley has utilized this mass of clinical material to good advantage; the results of which have already been made familiar to the profession in numerous analyses and studies of cases, published in various medical journals during several years past. The basis of the volume, the author tells us, is an essay on the management of eczema, read before the American Medical Association in 1874. With this have been incorporated the various published papers referred to, which have been worked over and put into a shape convenient for reference and study. The obvious disadvantages to which a book largely made up of a collection of papers independently written is liable, are a lack of systematic arrangement and much useless repetition, faults which are only too apparent upon examination of the work before us.

From a glance at the arrangement and scope of the book, we perceive that the first part is devoted to a general consideration of the frequency, form, symptoms, pathology, diagnosis, nature, etiology, and treatment of eczema. The author then takes up in detail the management of infantile eczema and of eczema of the different regions of the body. This is followed by an admirably written chapter on diet and hygiene—the whole concluding with a formulary.

At the outset we are confronted with the author's modification of Hebra's classification of skin diseases. Since the first publication of this classification, three or four years since, it would seem to be the inevitable accompaniment of everything emanating from Dr. Bulkley. Whatever its merits as a classification may be, or its points of superiority to other systems, its reproduction here, in a monograph devoted to eczema, seems to us singularly inappropriate and irrelevant.

Eczema is defined to be an inflammatory disease of the skin, of constitutional origin. The cutaneous inflammations which arise from the action of local irritants, though pathologically identical with the eczematous process, are classed as simple dermatitis. These, the author insists, are to be carefully differentiated from eczema—a distinction not rigidly adhered to throughout the work, as later on he refers to eczemas of occupation, eczema from poison ivy, from aniline dyes, and from chemical and mechanical irritants of the most varied character.

In the chapter on diagnosis no fewer than twenty-eight different skin eruptions are instanced as liable to be confounded with eczema. The differentiation of these several diseases, taken up in alphabetical order, is fully discussed, and their points of resemblance and dissimilarity are carefully traced. The conclusion is arrived at "that there is no one, single, distinct, and pathognomonic sign or symptom by means of which it [eczema] can always be immediately diagnosticated."

In considering the nature of eczema the author has departed from the traditions of the Vienna school, and asserts himself as a firm believer in its constitutional origin and relations. He discusses the question quite exhaustively, and brings forward many arguments drawn from the clinical history of the disease, its relations with other constitutional disorders, etc., to prove that which is, perhaps, not susceptible of proof, but which it seems hardly necessary to prove, inasmuch as the doctrine of its constitutional nature, which has always been the dominant principle of the French and English schools, is almost universally accepted. Even many of the immediate followers of Hebra have abandoned the exclusivism of their teacher, and no longer ignore the line which connects eczema with disorders of the general system.

Although etiology is generally regarded as the weakest chapter of pathology, Dr. Bulkley has endeavored to make it the strongest, as it certainly is the longest, chapter of his book. He devotes much time and space to a consideration of both the constitutional and the local causes of eczema, and arrives at positive conclusions as to their relative importance. While discarding the exclusive diathetic theories, such as the "dartrous," the "rheumic," the "arthritic," etc., and asserting that there is no dyscrasia proper to eczema, he claims that most patients with this disease may be grouped under one of the following classes: Subjects representing the gouty state, those exhibiting symptoms of the strumous state, and those belonging to the neurotic class. He admits that the lines of demarkation separating these groups are not absolute, and that it is difficult to assign some patients to either.

Much stress is laid upon the intimate relations of gout with the disease under consideration, while it is asserted that rheumatism is not thus associated—a distinction not readily appreciated when we consider that gout and rheumatism are expressions of essentially the same constitutional condition—an excess of uric or lactic acid, and consequent impurity of the blood from imperfect assimilation and disintegration.

A subordinate importance is given to external agencies as etiological factors. They are regarded merely as exciting causes, incapable of developing an eczema in patients not possessing a predisposition thereto. Or, to state what we conceive to be the author's meaning as tersely as possible, these irritating agencies are without pathogenetic value, except by awakening into activity a constitutional predisposition the existence of which is a necessary condition of their operation. Undue prominence is given, we think, to the differentiation of predisposing and exciting causes. The truth is that the causal conditions of disease are so complex and mysterious, embracing physiological as well as pathological predispositions, that it is impossible to arrive at conclusions which are certain and demonstrably true as to the precise *rôle* played by either internal or external etiological factors.

The treatment of eczema is confessedly the most difficult problem of dermatology. The first fact to be remembered, the author says, is, that "there is not and never can be any specific for eczema"—a statement not startlingly original, but one the truth of which no one will deny. The principles of treatment laid down in this book are based upon an appreciation of the pathological connection of the eruption with systemic disorders or diathetic states, the correction of which is the first indication. In the gouty state particular attention is to be paid to the action of the liver, bowels, and kidneys, and to the digestive organs generally. In the strumous state cod-liver oil, phosphates of lime and sodium, iodide of iron, etc., are indicated. In the neurotic states nerve tonics are to be given, such as quinine, phosphorus, strychnia, arsenic, etc. The author claims to have had remarkably favorable results from the use of arsenic in infantile eczema. The arsenical solution was given in cinnamon-water. "This was administered in such a quantity that the child a year old began with a drop of Fowler three times daily, the dose being gradually increased by one fifth of a drop until two, three, or even up to ten drops of the arsenical solution were taken with the meals thrice daily, or until there was some diarrhœa; the dose was then lessened." He adds that he does not think it wise to recommend this plan—a caution quite necessary when the dangerously heroic character of the medication is considered.

In acute eczema he follows the fundamental principle laid down by all authorities, which is to intervene as little as possible and confine the treatment to applications essentially soothing and protective. In order to present the author's views upon this important point, as well as to give our readers an idea of the style in which the book is written, we quote from pages 136, *et seq.:* "The principles of local treatment, therefore, are essentially to soothe and moderate, or modify inflammatory action in the early, acute, or sub-acute stages by emollients, protectives and mild astringents, and to stimulate or excite healthy absorptive action in the latter or chronic stages, phases, or conditions of the disease. The physician therefore must determine in regard as to the condition present in each case and the measures suited to it, and not employ any one remedy for all stages, nor any particular application because reported as valuable in eczema, upon however high an authority. In other words, the physician must definitely know and appreciate for what conditions any particular treatment was recommended, and also know and appreciate the state of the parts to be treated in the particular case under consideration; he should also understand the action of the remedies to be used and then apply them according to the principles here laid down."

To sum up our impressions of the book, its chief value consists in the presentation of what are commonly accepted as sound and correct views of the nature and treatment of eczema—views which long ago received the sanction of French, English, and German authorities, and which are exemplified in the practice of most dermatologists of the present day. While there is little distinctively new or original in the work, yet the author's large experience and his thorough familiarity with the subject have enabled him to give much useful information and many minor details in the management of eczema which will be found of great practical value by the general practitioner. Its defects are such as naturally flow from the arrangement in book form of a collection of papers, separately written and each more or less complete, without proper pruning and condensation. It is further weakened by a style somewhat diffuse, sentences frequently involved, and an unnecessary amount of verbiage. We need the assurance, given by the author in the preface, that these papers have been worked over. It is to be regretted that the revision was not more carefully done, as the literary excellence of the book is marred by badly-arranged sentences, ungrammatical expressions, and orthographical errors—faults which might readily have been remedied. Such phrases as the following—"An eczematous patch will often extend out on to parts devoid of hair" (p. 59); "the curability by a stimulating treatment of many cases which were otherwise and previously quite if not wholly incurable" (p. 142)—are too pleonastic to be admissible. The word "share" is constantly used throughout the book as synonymous with *number*, as in the following examples: "In the mind of a large share of those who make skin affections a special study" (p. 85); "in the larger share of instances"; "a large share of the lesions." As "share" respects individuals specifically referred to, its use in the foregoing connection is obviously incorrect. There is no etymological sanction for such a word as "ovarine"; "weasoned" can not be found in any dictionary; while many other orthographical errors might be picked out. Finally, such expressions as "I would almost declare," "I almost never," "almost more than," the latter occurring twice on the same page (198), strongly suggest the "almost too all-but" of the literature of the English Renaissance, and are altogether too hyperæsthetical for the pages of a practical book.

A Text-Book of Practical Medicine, with Particular Reference to Physiology and Pathological Anatomy. By Dr. Felix von Niemeyer, Professor of Pathology and Therapeutics, Director of the Medical Clinic of the University of Tübingen. Translated from the eighth German edition, by special permission of the author, by **George H. Humphreys**, M. D., one of the Physicians to Trinity Infirmary, etc., and **Charles E. Hackley**, M. D., one of the Physicians to the New York Hospital and Trinity Infirmary, etc. Revised edition. New York: D. Appleton & Co., 1881. Two vols., pp. xvi–767; ix–861. [Price, $9 cloth; $11 sheep.]

A review of this work was given in the Journal when the first edition came out, some years ago. The sad circumstances attending the death of the distinguished author (hastened, probably, by his labors during the Franco-German war) make it more than ever desirable that his labor should be kept before the profession. It was thought necessary that somebody should edit it and bring it up to the latest observations of those who worked in the same field with von Niemeyer. This has been done by Dr. Eugene Seitz. The translators have, in order to make the translation adhere as nearly as possible to von Niemeyer's original, made a liberal, rather than literal, translation of the last German edition. They have tried also to render the work more useful to the American reader, by making such additions from other sources as seemed to them wise. Short articles have been inserted on Chronic Poisoning by Alcohol and Morphine, Wandering Spleen, Paralysis Agitans, Scleroderma, Elephantiasis Græcorum, and Progressive Pernicious Anæmia; and a chapter on Yellow Fever, compiled chiefly from Bartlett's "Fevers of the United States." Throughout the work, those who are familiar with the previous editions will recognize considerable changes, but, for the most part, these changes are inclosed in brackets, or placed at the end of sections. A great saving of trouble is made by a brief comparative table of weights and thermometric scales.

Von Niemeyer seems to have been a specialist in all departments of medicine except surgery, if one may make such a statement. One would think, to begin the book, that he was reading the work of a distinguished laryngologist. Then, as he goes on, it is a special worker in diseases of the lungs. Von Niemeyer's article on Emphysema is alone worth the price of the two volumes.

The author is pre-eminently the opponent of the views of Laënnec and Louis, and those who have been in the habit of accepting them will find much in von Niemeyer to at least set them to thinking there may be other views than those of these distinguished pioneers. Von Niemeyer has been the great advocate of the view that the formation of cavities and consumption of the lungs are much more frequently the result of chronic inflammation than of tubercular deposit. He justly gives Virchow the credit of taking the important step in pathological anatomy which led away from Laënnec's teaching. Although we do not, by any means, accept his conclusions on this subject of pulmonary consumption, yet upon many points we believe him to be in the right. Since his death there has been a tendency among German observers to again change their views in regard to phthisis. Perhaps if von Niemeyer had lived, he, too, would have very much modified his views. Rokitansky, who at one time was an advocate of the views of Virchow to a certain extent, modified his own very much, and, but a short time before his death, expressed himself as yet in doubt whether or not, in the great majority of cases of pulmonary consumption, the blood dyscrasia did not precede all local manifestations.

At the end of the section on Pneumonia and Consumption of the Lungs there is an admirable revision, giving the latest views both on pathology and on treatment. Then, again, the section on the heart is admirable; and the one short chapter on "Neuroses of the Heart" is certainly one of the best we have ever read.

The sections devoted to the alimentary canal and to the liver and spleen, though good, are not so much to be commended as those on the lungs and heart. English authors could have taught von Niemeyer much on these subjects.

The second volume opens with an article on "Diseases of the Kidneys," and naturally passes to the bladder and urethra. How curious it seems to find, in a book devoted to the practice of medicine, an article, and a very readable one too, on gonorrhœa, and in the same book quite a full section devoted to diseases of the female sexual organs.

Under the head of "Ovarian Tumors" we should expect to find at least mention of the name of McDowell, but it is not there, nor is there any reference made to the labors of other distinguished American gynæcologists. Sims's speculum seems never to have been heard of by von Niemeyer.

About 250 pages are given to diseases of the nervous system, and then the reader is again surprised to pass to nearly 100 pages on diseases of the skin.

On many subjects throughout the book we can not agree with the author. He seems to be able to give reasons for his conclusions, but they are not always satisfactory. The clinical histories will stand as long as medicine is studied, in their completeness and detail. The translators have not made the reading pleasant, but it is fascinating, because of its usually convincing logic.

The book is not one which will come into competition with the single-volume books on the practice of medicine, but no one can afford to be without it. It is, by far, the best book within the reach of the great majority of physicians and students who may want to know pathology from the German stand-point. Von Niemeyer, besides being a most thorough and accomplished pathologist, was evidently an excellent clinician, and his work should be in the library of every physician.

We have not attempted a critical review, as that was given in the previous notice of the work.

The Science and Art of Midwifery. By WILLIAM THOMPSON LUSK, A. M., M. D., Professor of Obstetrics and the Diseases of Women and Children in the Bellevue Hospital Medical College, etc. With numerous illustrations. New York: D. Appleton & Co., 1882. Pp. xviii–687.

Second Notice.

IN a general way we gave our ideas in regard to Professor Lusk's work in the January number of the Journal. Regretting that we can not devote more space to this concluding notice of it, we shall have to content ourselves with brief allusions to a few of the features in it that have attracted our notice.

The usual prolegomena, embracing the anatomy of the sexual organs, the physiology of the ovum, and the physiology of gestation, are treated of quite fully, and satisfactorily in the main. As regards the behavior of the cervix during pregnancy, the author thinks that, while its non-shortening has been fairly demonstrated, it is not so clear that the os internum remains closed in all cases up to the beginning of labor. In a few instances in which he has observed its dilatation late in the course of pregnancy, however, the cervix has not expanded in such a way as to become continuous with the uterine cavity, but has remained distinct and apart, preserving its independent existence.

In treating of the process of labor, the description of the mechanism, in the various presentations and positions, is wisely associated with an account of the means of diagnosis and of the treatment proper to the special cases under consideration, instead of considering these matters in separate chapters, as is so often done. We agree with the author that what is thus sacrificed in the way of systematic completeness is more than compensated for by the clinical advantage of keeping at once before the reader's mind the principles of the obstetric art and the rules of practice directly deducible from them.

In cases of brow presentation, previous to engagement, the dip of the anterior fontanelle is often temporary, Dr. Lusk remarks, in many cases simply signifying a narrowing in the upper conjugate. For this reason, he adds, version, so frequently recommended, is of questionable value. Early in labor it does not better the prognosis, while at an advanced stage, when spontaneous correction is no longer probable, its difficulties exclude it from the list of practicable measures.

The author begins his chapters on the conduct of normal labor by remarking that it is hardly an exaggeration to state that the greater proportion of the sins of midwifery practice are committed in the management of normal labors. "It is equally easy," he continues, "to fall into errors of commission and errors of omission. It is as necessary to know when to abstain as when to interfere. It is an old, but always good rule, not to meddle with the physiological performance of a function; but the rule, when applied to obstetrics, presupposes a thorough familiarity with the physiological processes of childbirth and the contingencies to which women in parturition are exposed. There is no sense in reposing a blind, unreasoning confidence in the powers of Nature. Indeed, legitimate grounds for interference are liable to arise in the simplest labors. The attitude of the medical attendant should be one of watchful expectancy. He should be ready, if needful, to assuage pain, to forestall dangers, and to limit the duration of suffering." This passage well expresses the *juste milieu* that the author happily strikes, throughout the volume, between "meddlesome midwifery" on the one hand and the do-nothing policy on the other.

The section on the management of the first stage of labor strikes us as somewhat meager, embracing not quite a page, and being specially defective as to the matter of the mitigation of pain. The section on the management of the second stage has already been given in full in the pages of this journal, and we will therefore make no further mention of it. As regards the management of the placenta, the method by expression, commonly known as Credé's, is briefly but sufficiently described, and its precise scope and capabilities are well defined. It might have been well to give a critical summary of the recent controversy in regard to some of the details of the procedure. We can not too highly commend the following remarks of Dr. Lusk's in regard to giving ergot to prevent hæmorrhage: "To this there is no objection, provided the ergot be given subsequent to the expulsion of the placenta. When given, as is commonly done, at the time of the passage of the child's head, it is liable to produce its effect prematurely, and thus to give rise to hour-glass contraction. The rarity of the accident is no argument in favor of the popularity of the practice, in the face of the serious complication to which it is capable of giving rise."

Having devoted thus much space to that part of the work that treats of the more common aspects of midwifery, we shall have to forego alluding to many features that we should be glad to notice in that portion of it that treats of the pathology of labor. . The work, as a whole, is comprehensive, and we may say that it is, in every respect, a creditable exponent of the present state of our knowledge of obstetrics. The only fault of any magnitude that we have to find with it is, that too often the author merely portrays (vividly, it must be confessed) diverse views as to matters of pathology, and conflicting doctrines as to practice, but omits to state his own convictions decisively enough to suit the general reader. We trust that in future editions, which certainly ought to be called for, he will display less modesty in this respect. Concerning the mechanical execution of the book, it is one of the handsomest text-books we have ever seen. A few of the illustrations are poor, but most of them are exquisite.

The Anatomist. Being a Complete Description of the Anatomy of the Human Body, intended for the use of students preparing for examination at the Royal Colleges of Surgeons and other medical bodies.

Second edition, improved and enlarged by the addition of 171 wood engravings. By M. W. HILLES, formerly Lecturer on Anatomy and Physiology at the Westminster Hospital School of Medicine, etc. New York: G. P. Putnam's Sons, 1881. Pp. xix–360. [Price, $1·75.]

THE comparison of the cram-literature of the present day to the condensed nutriment which is another product of our modern civilization has always seemed to us eminently just. Carrying it out to its practical application, we believe that, just as condensed food would be unsuitable for a steady article of diet, cram-literature is not a desirable mental pabulum for continuous use; but we also believe that, as the former has its uses in times when the stomach, though unable to assimilate more than a scanty bulk of food, must yet elaborate from that bulk nourishment for the whole body, so the latter is advantageous in seasons of analogous mental distress—e. g., in the case of a medical student about to come up for examination. We do not, therefore, join in the general cry against cram-books, provided they are properly used. The cram-book will always find its place in the library of the hard-working student; and this is especially true of books upon anatomy, a subject which in any case requires more hard memorizing and less employment of the reasoning faculty than any other in the curriculum. Viewed in this light, Mr. Hilles's little book will be found useful as an *aide mémoire* while perusing the larger text-books, and while following out a course of dissecting. From such hasty examination as we have given it, it seems to be an excellent thing of its kind, and has the special advantage of being pretty thoroughly and pretty well illustrated. Indeed, in this respect it compares favorably with many of the more elaborate manuals. The same can not be said of the style, the brevity of which is such as to obscure the meaning at times; and this obscurity is heightened by some peculiarities in the punctuation and paragraphing, by which the relation and interdependence of words and of sentences are in a number of cases rendered uncertain.

A Treatise on Food and Dietetics, Physiologically and Therapeutically considered. By F. W. PAVY, M. D., F. R. S., F. R. C. P., Physician to, and Lecturer on Physiology at, Guy's Hospital. Second edition. New York: William Wood & Co., 1881. Pp. xii–402. [Wood's Library of Standard Medical Authors.]

IN view of the wide circulation which Dr. Pavy's book has attained, it seems hardly necessary to enter into a review of a work so well known already to most of our readers. That the "Treatise on Food and Dietetics" has enjoyed such widespread popularity, was a sufficient reason for its incorporation into Wood's "Library"; and the publishers have done wisely in thus making the general sentiment of the profession their guide in the construction of their series. In its present form, the book is a plainly-bound, rather substantial-looking, octavo volume, into whose four hundred pages is compressed about all that the practicing physician wants to know in regard to the composition and preparation of foods. On the subject of dietetics, which to the physician is of more practical importance than that of foods, we have always considered Dr. Pavy's book rather meager and unsatisfactory. But, while leaving out much that we should like to know, it is so good on the subjects of which it does treat as to justify both its previous popularity and its selection for a place in this series.

Lectures on the Surgical Disorders of the Urinary Organs, delivered at the Liverpool Royal Infirmary. By Reginald Harrison, F. R. C. S., Surgeon to the Infirmary, etc. Second edition, considerably enlarged. New York: William Wood & Co., 1881. Pp. xvi–399.

We have so lately given our opinion of the English edition of Mr. Harrison's work, that we need say nothing further of the present issue than that it is the same book, even in mechanical get-up, save the change of imprint.

Books and Pamphlets Received.—On Cancer of the Breast, with colored illustrations. By Thomas William Nunn, F. R. C. S. Eng., Consulting Surgeon to the Middlesex Hospital. London: J. & A. Churchill, 1882. 4to, pp. xiv–280. ═══ Recherches Cliniques et Anatomo-pathologiques sur les Affections Cutanées d'Origine Nerveuse. Avec 4 planches en chromo-lithographie et plusieurs figures intercalées dans le texte. Par Henri Leloir, Docteur en Médecine de la Faculté de Paris, etc. Paris: Bureaux du Progrès Médical, 1882. Pp. 220. ═══ A Treatise Diseases of the Eye [*sic*]. By Henry D. Noyes, A. M., M. D., Professor of Ophthalmology and Otology in Bellevue Hospital Medical College, etc. New York: William Wood & Co., 1881. Pp. xii–360. [Wood's Library of Standard Medical Authors.] ═══ A Clinical Hand-Book on the Diseases of Women. By W. Symington Brown, M. D., etc. New York: William Wood & Co., 1882. Pp. 247. ═══ Percussion Outlines. By E. G. Cutler, M. D., Assistant in Pathological Anatomy, and G. M. Garland, M. D., Assistant in Clinical Medicine, Harvard Medical School. Boston: Houghton, Mifflin & Co., 1882. Pp. 65, and lithographic plates. ═══ The Influence of Vivisection on Human Surgery. By Sampson Gamgee, F. R. S. E., Consulting Surgeon to the Queen's Hospital, etc. London: J. & A. Churchill, 1882. Pp. 81. [Price, 1s.] ═══ An Index of Surgery, being a concise classification of the main facts and theories of surgery, for the use of senior students and others. By C. B. Keetley, F. R. C. S., Senior Assistant Surgeon to the West London Hospital, etc. New York: William Wood & Co., 1882. Pp. vi–320. ═══ Ueber die primären chronischen Erkrankungen des willkürlichen Bewegungsapparates. Von Dr. Paul Julius Möbius in Leipzig. Leipzig: Georg Böhme, 1882. Pp. 16. ═══ On Hæmorrhoidal Disorder. By John Gay, F. R. C. S., etc. London: Churchill & Co., 1882. Pp. vii–60. ═══ Chemical and Physical Analysis of Milk, Condensed Milk, and Infants' Milk Foods, etc. By Dr. Nicholas Gerber. Translated by Dr. Hermann Endemann. New York, 1882. Pp. viii–101. ═══ A Practical Treatise on the Diseases of Children. By J. Forsyth Meigs, M. D., late one of the Physicians to the Pennsylvania Hospital, etc., and William Pepper, M. D., LL.D., Provost and Professor of Clinical Medicine in the University of Pennsylvania, etc. Seventh edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co., 1882. Pp. 1055. [Price, cloth $6, sheep $7.] ═══ Illustrations of Dissections, in a Series of Original Colored Plates, etc. By George Viner Ellis, Professor of Anatomy in University College, London, and G. H. Ford, Esq. Vol. II, second edition. New York: William Wood & Co., 1882. Pp. 226. [Wood's Library of Standard Medical Authors.] ═══ Ruptur eines Nabelbruches mit massenhaftem Gedärmvorfall. Von Dr. Carl Fieber. [Reprint.] ═══ Preliminary Observations on the Pathology of Seasickness. By J. A. Irwin, M. A., M. D., etc. [Reprint.] ═══ The Scientific Transactions of the Royal Dublin Society, I, 13, 14. ═══ The Scientific Proceedings of the Royal Dublin Society, II (N. S.), 7, III (N. S.), 1, 2, 3, 4. ═══ Transactions of the American Ophthalmological Society, 1881. ═══ Transactions of the American Medical Association. Vol. XXXII. ═══ Fourth Annual Report of the Connecticut State Board of Health. ═══ Third Annual Report of the State Board of Health of Illinois. ═══ Eleventh Annual Report of the Board of Directors of the Children's Hospital of the District of Columbia. ═══ In addition we have received a number of pamphlets, the separate acknowledgment of which is prevented by lack of space.

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Clinical Reports.

WOMAN'S HOSPITAL.

Reported by Andrew F. Currier, M. D.

(Service of Dr. THOMAS ADDIS EMMET.)

RETROFLEXION OF THE UTERUS; EXTENSIVE PELVIC CELLULITIS; PROLAPSED OVARY; POLYPUS AT THE OS INTERNUM.

Mrs. H., of Texas, aged thirty-two, was admitted April 15, 1881. She had been married eleven years; had had no children, and but one miscarriage at the third month. Menstruation, which began at thirteen, was irregular, the flow being profuse and painful, and lasting from ten days to three weeks. Sometimes there was no interval between the periods. The bowels were costive, and she was very weak, with a capricious appetite. There was a glairy leucorrhœal discharge, with great tenderness on digital examination, especially on the left side, posteriorly, in Douglas's cul-de-sac. She felt a continual sense of pressure upon the rectum, and of dragging in the region of the bladder, the latter causing an almost continual desire to micturate. The sound passed posteriorly about two and one half inches, meeting an obstruction at the internal os, which bled freely, but the bleeding was readily controlled. She was very despondent, but not hysterical, and markedly anæmic. She had been for some time under the charge of a physician who seemed to comprehend her condition, but felt unable to accomplish permanent relief with the appliances at hand, and so recommended her to this institution. He at one time removed a small growth of a polypoid nature from the cervical canal, with relief to the metrorrhagia for a time; also gave her astringents and applied pessaries of various sorts.

This case presents so many features which are common in the gynæcological practice of almost every one, that it may serve as a type. Not that it is common to have so many complications, but the train of symptoms following retroflexion, the despondency and hopelessness after a long-established condition of ill-health, are frequent and unmistakable. It is a case in which the moral element of treatment plays an important part. She was placed upon the usual treatment, hot vaginal injections night and morning, with great benefit, excepting that in the excess of her zeal she sometimes used water so hot as to burn the integument around the external genitals. Churchill's tincture of iodine was applied to the cervical canal and pelvic roof twice a week, and at the same time a plug of cotton was placed in the posterior fornix, against the retroflexed uterus.

May 14th.—In the month during which she has been here she has greatly improved; the appetite is better, the bowels are tolerably regular, the cellulitis is diminished, and it has been possible to carry the uterus forward through several degrees, thus relieving both rectum and bladder. Slight congestion about the meatus urinarius has been relieved by the application of a mild solution of nitrate of silver. Her appearance is now that of a woman in good health; she is cheerful and hopeful.

Unfortunately, soon after this date she fell, and, whether this was the cause or not, her old symptoms returned, and the uterus fell back again and became fixed.

June 30th.—The ground lost has not been altogether regained. Her condition has fluctuated the past month, and the pelvic inflammation is still too great to warrant the insertion of a supporter. To-day she has had severe hæmorrhage, excited by the polypus already referred to, which could not be checked by ordinary means. Ergot was ineffectual; she had taken large quantities before coming here. A hot alum solution was then injected, and a tampon was carefully placed, with the desired effect.

September 13th.—She has been under observation and treatment by Dr. Ingalls, house-surgeon at this hospital, during the summer, while the institution has been closed, and returns to-day with the inflammation greatly reduced. Should there be no further relapses, she will soon be ready for operation, the polypus being very small, but, as already shown, productive of much mischief.

This case teaches the importance of patience in these instances of protracted pelvic inflammation. With our present knowledge of the subject, it is futile to attempt a rapid cure, or to hold out such prospect to the patient. With proper precautions and treatment, however, the adhesive inflammation will disappear, and with it its dependent symptoms.

LACERATION OF THE CERVIX UTERI; PELVIC CELLULITIS.

MRS. S., of New Jersey, aged twenty-seven, was admitted September 22, 1880. She had been married seven years; had had no living children, but one premature confinement at the eighth month, a year ago. She had been sick since then. She menstruated at thirteen, at first every two weeks, afterward at proper intervals, the amount being normal, and the duration of the flow two days. There was pain during the flow, across the abdomen and back. Her general health and appetite were poor. She had a disagreeable, *heavy* feeling while walking. There were frequent pains in the head and left side, and across the back. The bowels were regular. She was very nervous. Anæmia was marked. Vaginal examination revealed a laceration of the cervix, especially upon the left side, and pelvic cellulitis of a not very intense character. She had had no previous treatment.

With symptoms so evident, and an exciting cause so little exaggerated, it would seem as if this case should have responded quickly to treatment. The laceration of the cervix did not show the formation of cicatricial tissue to a sufficient degree to indicate this as the prime cause of the disturbance; hence an operation here was not necessary. The patient, though weak and run down, was of a decidedly cheerful disposition. She was treated with hot vaginal injections morning and evening, and iodine applications were made to the pelvic roof three times a week, followed each time by the introduction of a glycerine pad covering the cervix.

November 29th.—Her pains are very much lessened; she can walk without difficulty, and her entire appearance shows improvement.

February 14, 1881.—Her condition has fluctuated; at times she has seemed very well, and again suffers great pain. A blister was applied to the abdomen to-day, with relief.

March 28th.—Cantharidal blister, four inches by five, applied.

June 1st.—She has had no bad symptoms for weeks past, and was discharged to-day, cured.

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Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

(*Continued from February number.*)

Bursting Cysts of the Abdomen.—Dr. Goodell read a paper on this subject. He said that in a pretty large experience in abdominal tumors he had seen a good many cysts which tended of their own accord to burst and refill. He narrated three cases. In the first case, the patient, the wife of a physician, was aged forty-six years, married, had borne three children, and came under his observation July 26, 1879. He saw her again September 25, 1879, and during the preceding eight weeks the tumor had grown very rapidly, and had a painful sensation of over-distension or bursting. It was aspirated, and about eight quarts of reddish fluid, evidently stained with blood, were removed. It was supposed to be a monocyst of the right ovary. It rapidly refilled, and still had a bursting sensation. Aspiration was about to be done again, when the patient stooped to pick up something and the cyst burst spontaneously. This history repeated itself four different times; the patient was tapped about a dozen times. In December, 1880, the cyst was removed. Its walls were very thin, and of a beautiful conjunctival blue. The nature of the tumor was ostensibly that of cystic degeneration of the left ovary. The right ovary was also enlarged by minute cysts, and was taken away. The patient made a good recovery. More careful examination proved the cyst to be parovarian. .The corresponding ovary was included in its pedicle, and was removed with it. The second case occurred in a woman who had convulsions. Her abdomen began to enlarge, and a skillful lady physician and several male physicians made a diagnosis of ovarian tumor. A day was set for tapping, but at the time appointed no tumor could be found, although the patient was examined under ether. This happened twice, and finally the tumor refilled, and Dr. Goodell removed it. He found it to be a cyst with an ovary in its pedicle, and he therefore regarded it as a bursting cyst of the parovarium. In the third case, the patient was twenty-five years of age, and came under his observation in 1880. A cyst was discovered behind the womb, which, after having been examined from time to time, disappeared, and its place was occupied by a small rugous body. This was soon converted into a cyst as large as an apple, and this latter again burst and was replaced by the small rugous body. The cyst, having filled again, once burst under Dr. Goodell's finger while examining it. Dr. Goodell thought that when cysts burst of themselves they were usually parovarian. He gave statistics showing the greater mortality of bursting ovarian cysts. In ninety-seven cases which he cited there were forty-six deaths and fifty-one recoveries. The fluid in parovarian cysts, however, was so bland that when they burst death did not usually occur. He had searched the records, and had found but two fatal cases; in each death occurred from collapse. These cysts sometimes refilled after tapping, and ultimately required removal. In five cases, however, in which he had tapped, the fluid removed was clear like spring water, and there had been no reaccumulation. They were more likely to refill after spontaneous rupture. Usually cysts which burst spontaneously were small, and had thin walls. Cysts of the parovarium were almost always unilocular. They might be bilocular or multilocular, but the latter were very rare. It was questionable whether a true unilocular cyst of the ovary had ever been met with. Ovarian cysts developed rapidly, compared with parovarian cysts. Some of the latter showed a remarkable disposition to remain stationary, and were usually small. They were often flaccid, as if not fully distended, a fact due to the varying quantities of fluid which they contained. In conclusion, the author said it seemed to him very probable that in some of these classical cases of double ovariotomy, followed by undisturbed menstruation, one of the cysts was parovarian, and its removal did not involve the corresponding ovary.

Dr. Chadwick would mention a single case, which occurred in his dispensary practice. There was a good deal of induration around the cervix, and evidently the woman had had pelvic inflammation on the right side and overlying the anteverted fundus was a cyst which at her first visit was recognized to be not round, but oblong, and not very easily defined from below because of induration, but from above it could be plainly defined. It felt as though the wall were extremely thin, and he cautioned a student to be careful in examining it lest it should rupture. A week or two afterward, when examining it with the same precautions, it disappeared, just as in one of Dr. Goodell's cases. Dr. Chadwick was considerably alarmed lest there should be some collapse or other bad symptom, but the woman experienced no sensation and walked home, and came back a week or two later much relieved of pain and other symptoms. The tumor never returned. He was disposed to think it was neither an ovarian nor a parovarian cyst, but probably a peritoneal cyst, or encysted dropsy of the peritonæum. He simply spoke of it as possibly indicating that another kind of cyst might rupture there. He would mention the fact that twice he had seen what he supposed to be rupture of a cyst, but which proved to be dropsy of the Fallopian tube, that disappeared during each menstruation, to reappear during the inter-menstrual period. In both cases during menstruation there were severe intermittent pains, very much like those from uterine contraction, and he believed they were due to uterine contractions extending to the Fallopian tubes, and that during the opening of the uterine extremity of the tubes the fluid was expelled into the uterus and came away with the menstrual flow.

Dr. **Fordyce Barker**, of New York, said he did not belong to the class of ovariotomists, and, consequently, had little opportunity for examination and experience in these cases as compared with many others, but it seemed to him that everything which would add to the value of the discussion should be contributed, inasmuch as our literature was rather scanty upon this subject. He would mention only two cases, the clinical features of which he thought were worthy of eporting. In 1846, before ovariotomy was recognized as a legitimate operation, a woman twenty-three years of age consulted him with reference to an abdominal swelling, and after repeated examinations he reached the conclusion that she had an ovarian tumor. He had her under observation for some time, and told her that no medicine could be used which would influence the tumor, and that at the proper time he would tap her. One day he was sent for in great haste to see her, as she had, it was said, met with an accident. On reaching her residence he found that she had been frightened at a cow, and that in her effort to escape she had run against a picket fence and fallen over it. She became unconscious, and was picked up in a collapsed condition. On examination he found that the abdominal tumor had disappeared in a great measure. The patient had a sharp attack of peritonitis, considered so at that time, but after a few days these symptoms disappeared, and he subsequently examined her repeatedly, but the tumor never reappeared, and the patient made a good recovery. In November, 1879, a lady from Boston came to him, bringing a letter from Mr. Spencer Wells. The history of the case was, that she had had enlargement of the abdomen for some time, and had been in bed more or less, and finally she became as large as she usually was when pregnant. On account of some nervous symptoms she consulted Dr. Brown-Séquard in Paris, who made a diagnosis of cystic tumor of the Fallopian tube. While on her journey from Paris to Cologne, the tumor burst, and there was a discharge of quarts of fluid. In October she went to London, and two days before she took the steamer from Liverpool for America she consulted Mr. Spencer Wells, who made a diagnosis of cyst of the Fallopian tube which had burst spontaneously, but was now refilling. When Dr. Barker examined the case he found a flat tumor to the left of the cervix, as large as a Florida orange, which pushed the uterus and the cervix to the extreme right. As it had burst once, he thought it best to burst it a second time, and so he punctured it, and it discharged eight ounces of fluid. He then dilated the opening, passed into the cavity of the tumor a probe armed with cotton, and swabbed the cavity of the cyst with Churchill's tincture of iodine. This he occasionally repeated, and three or four times, when he had made no local application for a week or ten days, the tumor again began to fill, and apparently very rapidly. In the course of the winter she went home, but after returning to Boston she had a very severe attack of peritonitis. The temperature rose to 103° F., pulse 130, and she was also jaundiced. She had had no applications to the cavity of the sac, however, for two weeks previously. During the winter of 1880 she was under the charge of his friend, Dr. Chadwick. On Tuesday last he had the opportunity of examining the patient, and he was unable to find the slightest trace of the cyst. It had now been absent about thirteen or fourteen months.

Dr. KIMBALL said that in the course of his rather extensive experience in ovariotomy it had been his lot to meet with quite a number of cases similar to those which had been referred to, probably as many as ten cases. The first case was interesting because it occurred soon after he had visited London and had a conversation with Mr. Spencer Wells, in which he gave an account of the rupture of the contents of a cyst and the escape of a jelly-like fluid into the abdomen. He immediately operated and found the peritonæum exceedingly vascular, showing that inflammatory action had become established. When he related the history of the case to the patient's brother, Sir Thomas Watson, the latter remarked: "Well, you removed the fluid, didn't you?" Mr. Wells said, "Yes," whereupon Sir Thomas said, "Why should your patient not get well then?" And she did get well. He was called to a case in New Hampshire a few days after returning from Europe, and saw a tumor of precisely the same character, where there was a jelly-like fluid, and he had great difficulty in removing it, but he finally succeeded, and that patient recovered without a single bad symptom. With regard to parovarian cysts, he recalled a case where the cyst refilled twice after rupture, the patient having been brought to his office from one of the neighboring towns. The tumor was not large, and he endeavored to dissuade the patient from any operation; but she was determined to have it removed, and finally a time was appointed for the operation, but on the day before the appointed time the husband came to him and said the tumor was all gone. He further stated that she suddenly fell upon the floor, whereupon, what was remarkable, she began to pass water, and passed, almost without any interruption, two or three gallons. On the next day there was no tumor to be felt, nor was there any constitutional disturbance whatever. In less than two weeks the husband came and said that the tumor had returned, and again a day was appointed for an operation, but again, the day before the operation was to be performed, the tumor ruptured, which was followed by a slight constitutional disturbance, but nothing serious. It refilled the third time, however, and he was in time to remove the cyst, which had a very slender pedicle, and the patient made a good recovery. Out of the nine or ten cases which he had seen, in four the patients had survived. It was really remarkable that these patients should have so little immediate suffering after the rupture of these cysts. The chief difficulty ordinarily was in removing the material which had escaped from the cysts. It was usually adhesive, so much so that it was almost impossible to detach it from the surface of the peritonæum and the other organs in the abdominal cavity. This was a serious matter, because any material that was left was pretty sure to become the source of septicæmia. In some of these cases, however, he had succeeded in removing the material so thoroughly that the operation had not been followed by any bad results. So far as his experience went the kidneys were disposed to take up this fluid, and carry it off with great rapidity.

Dr. ALEXANDER DUNLAP, of Springfield, Ohio, said that in his experience he had had no cases of rupture of these smaller cysts about the broad ligament; but he had seen seven cases of rupture of ovarian cysts. One of them was most interesting to him, for he operated upon the patient the fifth of last April. Some three or four years before that she had corresponded with him about the enlargement of her abdomen; had been making preparations to come to see him. But she had been persuaded to take "Radway's Ready Resolvent," and when she began to use that remedy she began to feel better, but the tumor did not seem to go away. One evening she was in the orchard, and while reaching after apples she was sensible of the fact that something tore in her abdomen. It produced no unpleasant sensation of pain, but she felt as if something had given way, and she went to the house and went to bed. She was up and down during the entire night, on account of the free action of the kidneys, and in the morning the tumor had entirely disappeared, and she sent him word that "Radway's Ready Resolvent" could cure ovarian tumors without operation. The tumor remained in that condition until last spring, when she returned and said that the tumor had again appeared, and she wished to have an operation performed for its removal. He then operated and removed a large ovarian cyst, with two thin walls running round inside, which contained about a pint of fluid. The outside walls were apparently single. The fluid was as clear ~~as~~ spring water, and there was no evidence of inflammatory products so frequently seen with ovarian tumors. There was no doubt that it was an ovarian cyst. Twenty days after that time he operated upon another lady. She appeared to be in good condition for the operation, but when he opened the abdominal cavity he found a large cyst, which had ruptured, and its entire contents had escaped into the abdominal cavity. She did not suffer much from it. The fluid was of that tenacious character that it could be gathered up in his hands, but could scarcely be removed from the hand, much less be removed thoroughly from the intestine and abdominal walls. The patient sank, and died on the fourth day. Of the other cases which he had had, four patients died within a week; one within an hour, one within four hours, one within less than twenty-four hours, and the fourth one within about a week after the operation, and she was in perfect collapse during the entire time. There was another case which he had about twenty-five years ago. The tumor contained about a gallon of fluid. He was unable to say certainly that it was ovarian. One night it ruptured, and directly afterward the patient passed a gallon of fluid from the bowels and the tumor entirely disappeared. It refilled in the course of a few months, and while lifting something from the floor one day she felt it give way again, and that time the contents passed off through the bladder. The rupture gave rise to no constitutional disturbance, and the patient recovered readily. It refilled again, and in the course of three months it gradually began to leak into both the bowels and the bladder, and eventually a fistulous opening was formed, so that fæcal matter passed through the bladder. She lived in that condition four years. He regarded it as almost certainly fatal when ovarian cysts ruptured, as the contents were almost certain to set up peritonitis of the most violent form.

Dr. SIMS said the bursting of ovarian cysts, as we had just heard, was not very uncommon, and a very interesting physiological fact had been mentioned by Dr. Campbell and Dr. Dunlap—namely, the elimination of the fluid by nature after the bursting of the cyst, twice by the bladder in Dr. Campbell's experience, and twice by the bladder and once by the bowels in Dr. Dunlap's experience. In 1856 he, with Dr. Jarvis, of Portland, Conn., saw a patient who had an ovarian tumor, and it burst, and she had this polyuria, and she thought she was cured. Some time afterward, whether a few months or a year he did not remember, it burst again after becoming enormously large, and disappeared. That time the fluid was eliminated by the bowels. She had diarrhœa perhaps a day or two. By and by it enlarged and burst again, and disappeared by the skin, producing profuse perspiration. He did not remember the order in which it occurred, but the fluid was eliminated on the three different occasions by the three different emunctories. The disease never returned after the third time; Dr. Jarvis told him many years afterward that the patient remained permanently cured. In some cases of bursting cysts no mischief was done; in others more or less; in some the patients died. Peaslee, Spencer Wells, Keith, and Thornton, all had had cases of bursting cysts, after which the patient went into collapse, and was snatched from the jaws of death by an operation. It was very important to know that an operation could be performed under these very depressing influences, and the patient's life be saved. But sometimes the cyst burst and the patient was cured, not alone in parovarian cysts, but in ovarian cysts as well. A case of the latter kind occurred in Charleston just before the war. The cyst was enormous in size, and burst. He did not know about the elimination of the fluid. The patient recovered, and was now well, at seventy years of age. About five years ago Dr. James R. Wood sent him a patient, and a day was appointed for an operation. He went there with all his paraphernalia, and four or five gentlemen went along to assist him. The patient was put upon the table, and they found that there was no tumor there at all. She said it had disappeared twice before, but she did not think it important to tell him, and he was in ignorance of it. The tumor refilled, and she was exceedingly anxious to have an operation performed. He was very sorry to say that it proved to be about as bad a case as anybody could encounter. She died. The cyst was very thin at one point, where it had burst and closed up. In the cases of the patients that got well the rent was a large one, and the fluid was absorbed as fast as it was secreted; and by and by the sac became reduced to a very small mass. In cases in which it refilled, the rent was a small one. In illustration of the former, in 1873 a woman was operated on in the Woman's Hospital for a very large ovarian tumor. She had had a tumor ten years before. A large corrugated mass was found at the seat of the original tumor not quite as large as the hand, or as thick. On one side there had been a large opening. That was the method which Nature had taken for effecting a radical cure.

Dr. Henry J. Garrigues, of New York, said it had become the fashion of late with some of the most scientific gynæcologists to do away with the term cyst of the broad ligament, and to substitute the term cyst of the parovarium. He doubted if this was an improvement. The parovarium was an organ which had a very definite location. It was situated between the ovaries and the outer half of the Fallopian tube. This organ might of course become the seat of cystic degeneration, and then we had a true parovarian cyst. But, besides that, he had seen quite a number of cysts develop anywhere in the broad ligament outside of this locality; especially did we find them near the fimbriæ of the tube; but he had also seen them anywhere between the parovaria and the edge of the uterus. He thought it was not possible to tell, when we had such a cyst, whether it was parovarian or had been developed in any other part of the broad ligament, and perhaps it would be as well to retain the expression cyst of the broad ligament. It was exceedingly difficult, anatomically, to distinguish with certainty between a cyst of the broad ligament and an ovarian cyst, or between an ovarian cyst and an extra-ovarian cyst. He must say he did not know of any absolute proof that a cyst was extra-ovarian, except it was that we found the ovary separate from it. On the other hand, he knew of one proof that a cyst was ovarian and not extra-ovarian, and that was when it was covered with columnar epithelium. Dr. Goodell was in doubt somewhat as to whether a true monocyst ever existed in the ovary. Dr. Garrigues said he had no doubt that such cysts existed, but they were very rare. They were in every respect like a cyst of the broad ligament, and the only way in which it was proved that one which he had an opportunity to examine was a cyst of the ovary and not of the broad ligament was by negative evidence, namely, that the ovary could not be found, although careful search was made for it; secondly, the part of the outer surface of the cyst which he examined was covered with columnar epithelium. Finally, he would add that he had had opportunity to see a case of rupture of a cyst, and to examine the specimen carefully. It occurred in the service of Dr. James B. Hunter, in the Woman's Hospital, and during manipulation for purposes of diagnosis the cyst burst. One week afterward Dr. Hunter operated and removed it, and Dr. Garrigues then had an opportunity to examine the specimen. The cyst wall was quite thick, at least one fourth of an inch. It had in it a rent three inches long, with smooth beveled edges, and without a trace of suppuration, which showed that it must have been opened by a very slow process of absorption, which had gone on until finally such a long rent took place. This case corroborated Dr. Kimball's, in so far as one week had elapsed since the rupture, and there was no trace of peritonitis at the time of the operation. There had been no kind of fever, or symptoms indicating the existence of peritonitis. Perhaps it was a case which would have ended in recovery without operation.

Dr. H. P. C. WILSON said that his experience with these tumors had been limited to one case only. He had not seen any cases of rupture of small tumors. Fours years ago a lady, twenty-six years of age, consulted him on account of an abdominal tumor which was diagnosticated to be ovarian. It was very large, and the suffering of the patient was principally on account of dyspnœa produced by pressure. The patient could breathe only while in the erect posture. He set a day for its removal, but the day previously, while rising suddenly from bed in the morning, she gave a stretch, and felt something give way, which was followed by agonizing pain and great collapse, and so alarmed were her friends that they sent for him and half a dozen other physicians at the same time. The pain was so intense that she could be relieved only by the use of hypodermic injections of morphine. In that case, as in other cases which had been reported here, the rupture was followed by a profuse discharge of water from the bladder, and all signs of enlargement were gone by evening. He then considered that he was mistaken in his diagnosis, and that it was probably a cyst of the broad ligament. That lady had remained in good health up to this day. He had seen her occasionally, and no trace of a tumor could be found.

Dr. THOMAS M. DRYSDALE, of Philadelphia, said he had seen a number of cases of the character alluded to in the paper and in the discussion, most of them, however, in the practice of Dr. Atlee. One of the first which he recalled was that of a delicate woman who came from the West to have an ovarian tumor removed, and sent for Dr. Atlee. Two or three days after her arrival the cyst burst, and she had all the symptoms of peritonitis, but positively refused to have an operation performed until the pain was relieved. She sank and died a few days afterward. At the autopsy he found a ruptured ovarian cyst. Another case was that of a clergyman's wife, who came to consult Dr. Atlee, and gave the history of an ovarian tumor, but when the doctor examined the patient there was no tumor, and it seemed to be an ordinary case of ascites. However, Dr. Atlee, relying upon the history of the case, operated, and had great difficulty in finding the remains of a cyst, because it had become so much shriveled and contracted. That woman lived, but, if he remembered correctly, she died a short time afterward with symptoms of chronic peritonitis. He remembered a patient who was enormously enlarged, and was supposed to have an ovarian cyst. It ruptured. She refused an operation, and, in the course of a year, died of some other disease, and he found at the autopsy a cyst of the broad ligament. The ovary was intact. From his experience in such cases he had been led to the conclusion that in the majority of cases where recovery from rupture of abdominal cysts occurred the case was one of cyst of the broad ligament, especially if aspiration had yielded a clear, spring-like fluid.

Dr. **Thaddeus A. Reamy**, of Cincinnati, said he had seen two cases in which an abdominal tumor disappeared; in the first, rupture did not take place. Whether it occurred in the other or not, he did not know. The first patient was a colored woman who came to his clinic at the Good Samaritan Hospital in Cincinnati six years ago. After careful examination he decided that she probably had a cyst of the broad ligament. He aspirated and removed one ounce of fluid, which was of the character that he had prophesied it would be, and the patient promised to go before the class for an operation. Within the next ten days the tumor entirely disappeared. His interpretation of the case was, that all the fluid escaped through the opening made by the aspirator needle, which was of about the size of a No. 5 male catheter. There was profuse diuresis. The patient did well, and was now living and in good health. The second case was one which he was called to see with Dr. Underhill, and the tumor was diagnosticated as ovarian. The patient was thirty-four years of age, unmarried. The tumor had been growing about a year. The doctor requested that it should be aspirated before the operation, and he drew off a small quantity of fluid with a hypodermic syringe. They then agreed that it was ovarian. About two months afterward he went to operate. Dr. Underhill did not see her for two weeks before the day appointed for the operation, and when he reached the house and proceeded to examine the abdomen there was no tumor there; it had entirely disappeared. In this case there was no evidence that the sac had suddenly ruptured. The patient had simply noticed that the tumor was growing smaller during the last four or five days, but did not regard it as worthy of any report. In this case also there was a history of copious diuresis.

Dr. **Kinlock** (a member by invitation) said he recollected a single case, which occurred in the practice of a colleague. On examining the abdomen by the bimanual method the cyst gave way, but no serious symptoms followed, and the patient made a good recovery. She had since married and borne children, and was a healthy woman. It was at the time thought to be a small ovarian cyst.

Dr. Goodell said he could not help thinking that some of the gentlemen had mistaken parovarian for ovarian cysts. He thought that the case which Dr. Dunlap related, in which "Radway's Ready Resolvent" produced such remarkable results, was undoubtedly a cyst of the broad ligament. We had here a light, clear fluid, and, while he was willing to admit that in one cyst the fluid might be dark and in another lighter-colored, and in another still lighter, he had never in a multilocular tumor seen such clear, spring-like fluid as was found in cysts of the broad ligament or cysts of the parovary. The fluid which was found in ovarian cysts was thicker, more mucilaginous in character, and he could not help thinking that his case was one of cyst of the broad ligament. As Dr. Garrigues had said, it was difficult to determine whether we had to deal with a cyst of the broad ligament or an ovarian cyst, as they resembled each other so much, but there were certain peculiarities by which they could be distinguished, and one was the unusual length of the oviduct, or Fallopian tube, and, further, the fimbriæ were usually less imbedded in the tumor, which was not the case in an ovarian tumor. In a parovarian cyst we had the longest condition of the oviduct, and less of fimbriæ in the body of the tumor. Then, again, the peritoneal covering of a cyst of the broad ligament could be stripped off with ease, as a rule, contrary to that of an ovarian tumor. In an ovarian tumor, consequent upon the cicatrices made by the escape of Graafian follicles we had the peritoneal investment nailed, as it were, to the underlying tissues, and the result was the impossibility of stripping off the peritonæum from these cysts. He thought also that Dr. Sims's case was one of cyst of the broad ligament, for the reason that the results were not so very marked. The patient recovered, and he thought it more reasonable to infer, as a rule, that, when a cyst burst and the patient recovered, it was one of the broad ligament rather than of the ovary. Dr. Garrigues had stated that he had met with one case of monocyst of the ovary. Of course he did not doubt that at all, but there were cases of alleged monocyst of the ovary which were not true monocysts. He had a case not long ago which originally was a polycyst, and the cysts had burst into the large mother cyst, so that he found the septa so broken down that it could have been described as a unilocular cyst. With regard to ovarian cysts bursting, he had had three cases, but they were cases in which the ovary had burst and the contents had escaped slowly, and on that account the patients had not had any marked constitutional symptoms. They were all colloid cysts of the ovary. In his experience, where the contents were colloid the cyst usually had a thin wall. In one of these cases the cyst was plainly malignant. He cleansed the abdominal cavity at the operation as well as possible, and the patient recovered, but he feared the disease would reproduce itself and that the patient would die. He meant, when he said ovarian, that it had all the appearances of an ovarian cyst, and yet it was difficult to determine whether it was ovarian or not. The third case was also a case of ovarian cyst. It occurred in a colored woman, and was the first he ever saw in that race. He was extremely puzzled when he cut down upon it, and it was some time before he found out the condition of things. The cyst had burst, but, owing to adhesions, had not wholly collapsed. It was so surrounded and covered up by the thick colloid mass that he did not discover it at once, and for some time his hand was working within it, while he did not have the remotest idea he was doing so. In that case adhesions to the womb were most formidable, and he wounded that organ during the course of the operation. The result was a fatal one; so his experience led him to the conclusion that when an ovarian cyst burst the patient either died quickly or had very marked constitutional symptoms. As a corollary to this proposition, it might be said that the inference was fair, that when there was but little constitutional disturbance we had to deal with a cyst either of the parovary or of the broad ligament.

ERYSIPELAS IN CHILDBED WITHOUT PUERPERAL PERITONITIS.—Dr. HENRY F. CAMPBELL, of Augusta, Ga., in a paper upon this subject, said that previous or recent attendance of a physician upon a case of puerperal fever or puerperal peritonitis should prevent him from attending any patient in labor, for fear of manual transmission of the poison of the disease to the lying-in woman, and scarcely less obnoxious had been regarded the recent, and by some even remote, contact with or attendance upon a case of erysipelas by the nurse or physician. So fixed was this idea in regard to the manual transmission of erysipelas that by some puerperal peritonitis had come to be regarded as an internal erysipelas, or rather an internal manifestation of the identical toxæmia from which the cutaneous eruption had originated. He had been so far controlled by this idea that he had always refused to attend cases of traumatic erysipelas when he was about to attend a case of labor. He then said that he was called to see the wife of a baker, who had well-marked facial erysipelas, and who was far advanced in pregnancy. Calling upon her one day, he found, much to his surprise, that she had been delivered of a child three days before, and she had not the slightest sign of peritonitis, of hyperæsthesia, or tenderness, and she went on to perfect recovery. The child, however, was feeble, and died on the fourth day. He was greatly astonished at the patient's recovery, for the attack of erysipelas was a very severe one. The face was greatly swollen, the eyes were closed, and she was delirious. The treatment consisted in large and repeated doses of quinine, bicarbonate of sodium, the sulphite of sodium, and local applications of sulphite of sodium to the face. Possibly it had something to do with the recovery. He wished enlightenment from the society on the question, whether our apprehension about coming in contact with cases of erysipelas during attendance upon cases of labor was well based. This case would seem to answer that question positively in the negative, for here was a woman with a severe attack of facial erysipelas, passing through childbirth without having the slightest sign of peritoneal inflammation or tenderness. Or, he asked, did treatment control the result?

Dr. **Mary Putnam Jacobi**, of New York (member by invitation), would venture a single suggestion with regard to Dr. Campbell's case. As the erysipelas occurred before the confinement, the emanations from the body would not affect the placental wounds, etc., when made, because the disease had already run its course, and self-infection could not occur. Moreover, erysipelas was primarily a disease of the lymphatic system, and might be confined to that system without the blood becoming affected; consequently, as there was no particular connection anatomically between the erysipelas of the face and the uterus, the wounded surface of the latter was not really exposed to the poison.

Dr. **Goodell** said he had not seen labor and erysipelas coexisting in the same patient, but he had seen two cases in which erysipelas took place a very short time after labor. In both of those cases recovery took place, and he attributed the recovery to the fact that the erysipelas was a cutaneous explosion, as it were. One of the cases occurred in the practice of his friend, Dr. Albert H. Smith. The lady recovered. As Dr. Smith was present, he would doubtless give the history of the case more completely. The other case was also one of cutaneous erysipelas, and the patient recovered without trouble. But that there was a relation between the two diseases, he was satisfied. He was in charge of a lying-in institution, and in one of the wards a woman had puerperal peritonitis, fortunately of a manageable form, and she recovered; but as she was getting well her child took erysipelas, and shortly afterward a woman in that ward and one in another ward were seized with puerperal fever, and both women died; and the nurse attending them had facial erysipelas. One of the most conscientious gentlemen he knew had a series of most distressing cases, and a history of them had already been written, but he would not publish it for fear that the relatives might accuse him of having caused the death of members of their family. He (Dr. Goodell) thought it was necessary that there should be erysipelas of a phlegmonous character, in which the physician was compelled to make daily dressings, in order that the poison should be communicated by him to other patients. Not surface erysipelas, but phlegmonous erysipelas and puerperal fever were convertible terms. The gentleman referred to had seven cases of labor, and five of the women died before it flashed across his mind that their deaths had any relation to a case of erysipelas he was dressing daily. Dr. Goodell was called into the country some years ago to see a case of puerperal fever, and, the attending physician remarking that he had on hand three other cases of puerperal peritonitis, he replied that he must have a case of phlegmonous erysipelas among his patients. And so he had. The speaker thought that in the case which Dr. Campbell had reported the woman was saved by this cutaneous, or surface, explosion, which kept the disease from affecting the internal organs.

Dr. H. P. C. Wilson said that twenty-five years ago he had charge of the Baltimore City Almshouse, in which were six hundred patients, and in one of the wards erysipelas broke out and a number of the patients had severe attacks. A few days afterward puerperal peritonitis made its appearance in one of the wards, and every woman who was subsequently confined had puerperal fever, and they all died. He was unable to arrest the mortality until he had every woman who was expecting to be confined removed to an out-house away from the building, and after that he saw no further cases of puerperal fever. Although he had felt as sensitive as any one could feel with regard to attending a case of labor when he had to do with erysipelas, he would state that when he was attending these cases of erysipelas in the almshouse, and spent hours in the wards through the entire epidemic, he did not know of a single case of puerperal fever which occurred in his private practice, nor a single case of erysipelas. He had not been able to trace a case of puerperal fever in his own practice to a case of erysipelas. The only case which had given him any trouble in his own mind, as to whether he was the cause of puerperal fever or not, was one of scarlet fever. He was in attendance upon a case of scarlet fever, and at the same time was waiting upon a woman in labor, and that woman had puerperal fever and died.

Dr. Smith thought the case of erysipelas to which Dr. Goodell had referred was the most serious which he had ever seen end in recovery. The patient was apparently in good health at the time of her confinement, but the nurse had erysipelas, which developed one or two days after the confinement. The erysipelas was phlegmonous in character, and spread over the right nates, down upon the thigh on that side, over the abdomen to the opposite side, and finally involved more than two thirds of the entire surface of the body, and in some places the suppuration was profuse. The vulva was involved on both sides. There was no evidence whatever, either from local tenderness or difficulty of urination—he made no vaginal examination, of course—of what might be called puerperal peritonitis. He attended that patient three times a day, and during that time he was in attendance upon three women in labor, but he took good care to thoroughly disinfect his hands, and not one of those patients was infected. He thought that case gave remarkable evidence of the fact that puerperal fever was essentially a contagious and not an infectious disease. He had seen other cases of erysipelas and had attended cases of labor at the same time, but he always made it a point to thoroughly disinfect his hands before going from one patient to another, and he had seen them go through their labors without trouble from absorption of the poison.

Dr. **Lyman** said he once had a case of erysipelas in a woman who was about to be confined, and her husband, who was in the same room, had at the same time a bad attack of phlegmonous erysipelas. Dr. Lyman supposed the woman would die, but she went through her confinement without a particle of difficulty, and made a good recovery. That was the only case which he had had of erysipelas and labor occurring at the same time in the same patient. But he had been so much in fear of transmitting the contagion that he always refused to go to a case of labor soon after attending a case of erysipelas. As to the explanation of how a patient might have erysipelas and be confined at the same time without any subsequent development of puerperal fever, he was not quite certain. He was not fully prepared to accept the philosophy of Dr. Goodell's explanation. He was much inclined to think that the explanation given by Dr. Putnam Jacobi was the more correct solution of the problem—that was, that the poison was not directly transmitted to the inner surface of the uterus.

Dr. **Ellwood Wilson**, of Philadelphia, said he believed the suggestion made by Dr. Smith, that perfect disinfection of the hands and clothing afforded almost invariably an exemption from communicating the poison of erysipelas or scarlet fever to a lying-in woman. He had had three or four cases of labor while in attendance upon patients sick with erysipelas, and, using every precaution which he could, disinfecting his hands with permanganate of potassium and using carbolized oil, he had not seen any unfavorable symptoms following such practice. It frequently occurred that he was in attendance upon a large number of children sick with scarlet fever, and at the same time was compelled to look after cases of labor. This had occurred to him a number of times, and he had no recollection of any unfavorable result except in one instance, and that was in connection with a very malignant form of scarlet fever. Attending a case of labor at the same time, it was necessary to apply the forceps high up in the pelvis, and subsequently there were some symptoms of septicæmia developed, but not to any very great extent, and the patient recovered.

Dr. **Barker** said the intimate relation between puerperal fever and erysipelas he considered as firmly established as any fact in medicine. In the earlier days of his practice he unfortunately became acquainted with erysipelas as it prevailed epidemically in the eastern part of Connecticut, some twenty miles from where he lived, and it was known throughout that region as "black tongue." During that epidemic two physicians were stricken down with it, and he, being a young man, was asked to go and work for them. Every woman in that region who was confined at that time had puerperal fever, without respect to who was he accoucheur, and he thought every one died. He saw at least ten or twelve, cases of puerperal fever after confinement. He would mention a single fact which showed the intimate relation existing between these two diseases. A nurse who had attended upon a patient sick with erysipelas afterward was engaged to attend a lady who resided eighteen miles from any person who had had erysipelas or puerperal fever. That lady was confined without accident or complication, and the second day afterward she was attacked with a very severe form of puerperal fever, and Dr. Barker was sent for. She died, and the doctor who attended her died five days afterward of erysipelas. The nurse, after nursing the doctor, was also attacked with erysipelas and died. With relation to the case which Dr. Campbell had reported, he wished simply to say that Dr. Putnam Jacobi had expressed his belief in much better language than he could have done himself. It was just what was passing through his mind when she made her statement, namely, that the poison of the erysipelas was expended upon the tegumentary surface, and was not transferred to the genital organs at all. He thought also that the distinction which Dr. Goodell made was a good one. There was a class of cases of erysipelas in which the disease affected simply the tegumentary part of the system, and its poison was not transferred to any organs or tissues within the body. The speaker said he was often consulted by surgeons in this city as to the propriety of attending cases of confinement while in attendance upon cases of surgical erysipelas, and he had advised them that if there was a suppurating surface in the erysipelas case they should not attend a woman in confinement; but in a simple case of erysipelas of the face without suppuration, he could not engage that they would be exempt from conducting the poison to the woman to be confined, but perhaps the risk was not so great but that it could be taken. He thought Dr. Goodell and Dr. Putnam Jacobi had furnished all the explanation needed with reference to Dr. Campbell's case, and it was therefore not necessary for him to add anything further.

Dr. Campbell, in closing the discussion, said he had not arrived at any conclusion with reference to his case. He suggested that the germicidal properties of quinine might have had something to do with the recovery of the patient, and also the internal use of the bicarbonate of sodium. He also gave, it was true, the sulphite of sodium a part of the time, and also put this upon the patient's face. He thought Dr. Putnam Jacobi's suggestion probably a good explanation. Indeed, in a portion of his paper which he had not read he referred to a case of puerperal erysipelas transformed into puerperal peritonitis and ending fatally, in which the accoucheur, as consultant, had been in attendance for the erysipelas previously to the parturition. In his own case, however, the condition suggested as that on which escape was made, seemed to be inadequate to the result, if it had been alone depended on. He did not know how far blood conditions might operate in the production of erysipelas, but, if the disease were dependent on organic infusion, we might expect from such saturation of the blood with quinine and alkaline ingredients as he had maintained in his case, for about fifteen days, some decided results in neutralizing the morbific agencies—especially, he would add, if quinine could be proved as deadly to germ-life as had been claimed. As to the explanation given by Dr. Goodell, that the explosion upon the face relieved the internal skin, he was not sure about that. He did not see how it could do it; he did not see that we had much evidence of that kind. Dr. Wilson, of Baltimore, and also Dr. Wilson, of Philadelphia, had both mentioned cases in which scarlet fever seemed to have propagated puerperal peritonitis. The speaker had in mind a case in which a woman had scarlet fever after labor, but recovered without difficulty.

NEW YORK CLINICAL SOCIETY.

A regular meeting was held May 27, 1881, Dr. E. L. Partridge, Chairman for the evening.

Wound of the Knee Joint.—Dr. D. B. Delavan presented a patient illustrating perfect recovery of a knee joint after severe perforating wound, without antiseptic precautions. The boy, seventeen years old, had fallen between a car and a platform six years before, and had sustained many injuries. The pelvis and several ribs were fractured. There was severe general contusion, and a lacerated wound of the right knee opening into the joint. A consultation of hospital surgeons resulted in a decision to amputate the limb. The boy's condition became so critical, however, that the operation was deferred twenty-four hours. It was then thought possible to save the leg. The wound, two and a half inches long, on the outer side of the patella, was cleansed of shreds of clothing, etc., and was found to communicate freely with the joint. It was sealed up with collodion and lint, and the limb was put upon a posterior splint, in a semi-flexed position, and surrounded by a coil of rubber tubing through which cold water continually flowed, maintaining a low temperature about the joint. Listerism was not in vogue at that time. A moderate febrile action set in two days later, but subsided on the fourth day, and convalescence rapidly ensued. The knee regained perfect motion and had remained normal.

Multiple Cardiac Murmurs.—Dr. W. H. **Katzenbach** showed a lad, fifteen years old, with four well-marked murmurs on the left side of the heart. Nine years ago he had measles, and had since been delicate. For three years past he had had bronchitis and asthma—worse in May and June each year. In January last he became anæmic, and suffered from much cardiac palpitation and shortness of breath. He had had no preceding rheumatism. An examination discovered four murmurs on the left side of the heart, to wit: a mitral obstructive and regurgitant and an aortic obstructive and regurgitant. The heart was only slightly hypertrophied. His treatment had been tonic only, viz., with nux vomica, tincture of chloride of iron, and chloride of ammonium. He had had no digitalis. He was now apparently in good condition, having neither dyspnœa nor anæmia. It had been observed that his pre-systolic murmur sometimes disappeared. Dr. Katzenbach thought the aortic regurgitation threw the mitral valves into vibration and produced this transient murmur. ═══ Dr. A. A. **Smith** agreed with Dr. Katzenbach that experience showed that children with organic heart disease usually did quite as well, if not much better, upon simple tonics as they did under the use of special heart stimulants.

Dr. **Ely** again showed the lad upon whom he had operated for a deformity of the auricles (see the proceedings of the March meeting). Since then he had performed a like operation on the other ear, with equally satisfactory results.

Robert Abbe, M. D., *Secretary.*

Reports on the Progress of Medicine.

MONTHLY REPORT ON OBSTETRICS AND GYNÆCOLOGY.

No. XV.

By ANDREW F. CURRIER, M. D.

Obstetrics.

1. **Keiller.**—Report of the Royal Maternity and Simpson Memorial Hospital for the quarter ending 31st July, 1881. "Edinb. Med. Jour.," Feb., 1882.
2. **Ahlfeld**, F.—Ueber Morbiditätsstatistik der Entbindungsanstalten. "Centralbl. f. Gynäk.," Jan. 14, 1882.

3. Glenn, W. F.—Fœtal circulation—are the text-books correct? "South. Pract.," Feb., 1882.
4. Nickerson, N.—The diagnosis of early pregnancy. "N. E. Med. Monthly," Feb., 1882.
5. Rambaud, L.—Avortement; rétention du placenta; hémorrhagies abondantes; transfusion du sang; mort. [Soc. Anat., Paris.] "Progr. Méd.," Jan. 21, 1882.
6. Hawkins, S. B.—Miscarriage followed by labor at full term. "Trans. of the Med. Assoc. of Georgia," 1881.
7. Hardison, W. H.—Self-abortion. "Louisville Med. News," Dec. 10, 1881.
8. Houston, T. F.—Viburnum prunifolium. "South. Med. Record," Feb., 1882.
9. Fifield.—Obstinate vomiting of pregnancy. [Obstet. Soc. of Boston.] "Boston Med. and Surg. Jour.," Jan. 26, 1882.
10. Warren, J. S.—The hystero-neurosis of the stomach in pregnancy and its management. "Trans. of the Med. Soc. of the State of N. Y.," 1881.
11. Mundé, P. F.—A case of puerperal chorea. "Am. Jour. of Obstet.," Jan., 1882.
12. Porter, G. L.—Malaria; its influence and that of its antidote, quinine, upon pregnancy. "N. E. Med. Month.," Jan., 1882.
13. Banerjee, B. N.—Two cases of hydrorrhœa gravidarum. "Indian Med. Gaz.," Jan., 1882.
14. Forrest, W. E.—A study on some of the changes in the uterus and pelvic diaphragm during labor. "Am. Jour. of Obstet.," Jan., 1882.
15. Ingals, E.—The management of parturition. [Chicago Med. Soc.] "Chicago Med. Jour. and Exam.," Jan., 1882.
16. Pajot.—Des accouchements difficiles par la direction vicieuse des forces. "Ann. de Gynéc.," Jan., 1882.
17. Barton, J. A.—On a case of locked twins. "Lancet," Jan. 7, 1882.
18. Landis, H. G.—The presentation of the head and feet. "Am. Jour. of Obstet.," Jan., 1882.
19. Croom, J. H.—Funic hæmorrhage during labor. "Edinb. Med. Jour.," Feb., 1882.
20. Hart, D. B.—The causation of the movements of the head at the brim of the rickety pelvis; with illustrative cases and some remarks on treatment. *Ibid.*, Jan., 1882.
21. ———.—Discussion on contracted-pelvis. [Glasgow Med.-Chir. Soc.] "Glasgow Med. Jour.," Feb., 1882.
22. Hauenstein, J.—Cephalic version in the postural position [*sic*]. "Buffalo Med. and Surg. Jour.," Feb., 1882.
23. Campbell, W. M.—On the use of the forceps in midwifery. [Liverpool Med. Inst.] "Liverpool Med.-Chir. Jour.," Jan., 1882.
24. Porro, E.—Un trofeo del forcipe Lovati ed un' avventura del forcipe Naegele. "Gazz. Med. Ital.-Lombard.," Jan. 28, Feb. 4, 1882.
25. Ashby, T. A.—Observations on the part the obstetrical forceps plays in the induction and prevention of perineal lacerations. "Maryland Med. Jour.," Feb. 15, 1882.
26. Obissier, H.—Application du forceps au détroit supérieur. Nouveau procédé. "Bull. Gén. de Thérap.," Jan. 30, 1882.
27. Nasmyth, T. G.—Induction of premature labor in a woman who had been delivered formerly by craniotomy; child alive. "Edinb. Med. Jour.," Feb., 1882.
28. Frank.—Beitrag zur Lehre von der Sectio cæsarea. "Centralbl. f. Gynäk.," Jan. 14, 1882.
29. Ingerslev, E.—Om Placenta prævia. "Hosp.-Tidende," Nov. 23, 30, Dec. 7, 14, 21, 28, 1881.
30. Morton, D.—Some representative cases of uterine hæmorrhage and their treatment. "Louisville Med. News," Feb. 4, 1882.
31. Orti y Lara, V.—Una página suelta sobre algun punto oscuro en la práctica de la tocología. "Andalucía Méd.," Nov., Dec., 1881.
32. Blackwood, W. R. D.—On retained placenta, with special reference to uterine inversion. "Am. Jour. of Obstet.," Jan., 1882.

33. Collyer, J.—Case of shortened cord producing inversion of the uterus. [Letter.] "Lancet," Jan. 14, 1882.
34. Latimer.—Artificial anus resulting from tying the bowel with the umbilical cord. [Clin. Soc. of Maryland.] "Maryland Med. Jour.," Feb. 1, 1882.
35. Ferguson, J.—Puerperal eclampsia. "Canad. Jour. of Med. Sci.," Feb., 1882.
36. Church, H. M.—Case of labor complicated with acute nephritis and eclampsia. Twins, still-born. "Edinb. Med. Jour.," Jan., 1882.
37. Goodell, W.—Extra-uterine fœtation. [Obstet. Soc. of Phila.] "Med. News," Jan. 21, 1882.
38. Chevalier.—Grossesse extra-utérine; occlusion intestinale; anurie; mort; autopsie. "Lyon Méd.," Jan. 8, 1882.
39. Bancroft, J.—Missed labor. [Letter.] "Lancet," Jan. 14, 1882.
40. Thompson, J. W.—Puerperal septicæmia. "Nashville Jour. of Med. and Surg.," Feb., 1882.
41. Buck, J. S.—A case of puerperal septicæmia and convulsions. Washing out of uterus antiseptically; recovery. "Lancet," Jan. 14, 1882.
42. Bridge, N.—A case of facial erysipelas in a lying-in patient without puerperal fever. "Chicago Med. Jour. and Exam.," Jan., 1882.
43. Barnes, R.—On antiseptic midwifery and septicæmia in midwifery. "Am. Jour. of Obstet.," Jan., 1882.
44. Jastrebow, N. W.—Zur Lehre von den polypenförmigen Vorragungen der Placentarstelle. "Centralbl. f. Gynäk.," Jan. 21, 1882.
45. Lewis, D.—Dressing of the umbilical cord. "Trans. of the Med. Soc. of the State of N. Y.," 1881.
46. Bar, P.—Note sur un cas d'amputation congénitale. "Ann. de Gynéc.," Jan., 1882.

16. M. Pajot, in reference to *accouchements rendered severe by the vicious direction of the uterine contractions*, remarks that varieties of presentations differing from the ordinary in the inclination of the presenting part are not considered by modern obstetricians such serious obstacles to the engagement of the fœtus as they were generations ago, by Baudelocque for example. They represent nothing but a deviation of the direction of uterine force, caused not by a primary change of position on the part of the fœtus, but by some deformity or obstruction in the tube along which it is to pass. The uterine contractions will either rectify this inclination or increase it, even to the point of changing the presentation, and making engagement impossible. Thus are explained certain of the face presentations and some presentations of the body following the cephalic and pelvic extremities. This statement is intended to exclude that contraction from left to right which is often perceived at the beginning of labor, and which results only in the loss of a small quantity of force. The special object of this paper is to illustrate vicious direction in a case of twin pregnancy where the author was called as counsel. It was a second accouchement, already of thirty-four hours duration when he arrived. The first child had presented by the breech and was arrested in its progress by the second. The membranes had broken six hours earlier, and no engagement had resulted, notwithstanding energetic contractions. The diagnosis of the consultant after careful examination was: inclined presentation of the breech, of the right iliac variety, right anterior sacro-iliac position. The patient was thoroughly anæsthetized, the accoucheur's right hand was passed along the left side of the pelvis, a blunt hook was placed in the groin, and traction was made ineffectually. The cause was the obstruction offered by the second fœtus, so that with each uterine contraction the right half of the breech descended to engage, while the left ascended. In other words, there was the lateral movement proper after the breech is expelled. Traction, combined with pressure in the rectum with the forefinger of the left hand, sufficed to rectify the position, and the child was quickly extracted. The difficulty was a confusion of fœtal and uterine axes, due to the opposition of the trunk and breech of the second fœtus. The uterine force, acting from left to right and from above downward, necessitated the engagement of the entire right side, and the more this descended the more the left ascended. Anæsthesia was of the great-

est benefit both in diagnosis and operation. The second child presented by the head, and was extracted with forceps two hours after the first. The conclusion is, that if the forceps take a wrong direction, and the fœtus engage at the brim, self-rectification is possible and probable, unless some mechanical obstacle intervenes. In the latter case an irregular variety of the same presentation will result, tending to become more and more so, or it will give place to an entirely different but perhaps dangerous presentation. Gradually power will be lost, labor arrested, and the accoucheur compelled to interfere. The author admits that the method of operation should be determined by the exigencies of the case and the good sense of the accoucheur. The usual result in cases of this nature is simply prolongation of labor; exceptionally, intervention is required.

19. Dr. Croom says with reference to *funic hæmorrhage during labor* that it is a rare accident, and occurs most frequently where the labor has been precipitous, the woman being sometimes delivered in a standing position. He refers more particularly, however, to that form of hæmorrhage which is due to faulty insertion of the cord into the placenta. Four insertions are possible: 1, central; 2, eccentric; 3, marginal; 4, velamentous. The first two are ordinary, the others abnormal and liable to cause hæmorrhage. The velamentous insertion occurs in about five out of every thousand pregnancies. The distance from the placenta at which the vessels enter the membranes in this form of insertion varies from a point exactly opposite to a point four centimetres removed. They may also divide before reaching the membranes. Where the branches diverge before reaching them, they often expand into sinuses, favoring rupture. The tortuous character of the vessels, especially the veins, also increases the risk. The velamentous insertion may be marginal, eccentric, or both marginal and eccentric. The cause of this abnormality is hypothetical. The theories of Hüter and Schultze are referred to. The dangers to the fœtus arise both during pregnancy and during labor. In the former condition development is apt to be impaired, though this is denied by Credé. The authors cited as contributing to the subject with reference to hæmorrhage during labor are Wrisberg, Lobstein, Uvedale West, Hüter (whose essay "Uber die Vorliegen der Nabelschnurgefässe," "Neue Ztschr. f. Geb.," xii, 1842, p. 48, covers the subject), Chantreuil, Joulin, Schröder, Ruge, Spiegelberg, Kleinwächter, and Zweifel. Pluskal records a case where the umbilical cord of a fœtus dead previous to delivery was divided at a point fifteen centimetres from its placental insertion. At the point of division was a pouch of the size of a hen's egg, the walls of which were thin and torn. Hæmorrhage had lasted three hours, and the fœtus was exsanguine. Other cases are cited where this same division and weakness of the vessels led to severe hæmorrhage, not always fatal to the fœtus. Hæmorrhage is probable according as the vessels are short and crowded, and as the rupture of the membranes involves more or fewer of them. Again, when the placenta is low and the cord is inserted into its edge, the dilated end of a vessel is likely to give way. Vasa aberrantia are another cause of funic hæmorrhage. Hyrtl divides them into: 1, real placental vessels; 2, subsidiary vessels; 3, vasa nutritientia chorii. Diagnosis is impossible when the vessels spread out high in the uterus. When vasa aberrantia are present, and in the vicinity of the os uteri, they can usually be felt and a diagnosis be made. The hæmorrhage may come on many hours before delivery, or with the rupture of the membranes. Velamentous insertion of the cord is not uncommon in twin pregnancies. As to treatment, the membranes should be kept intact as long as possible. Hæmorrhage may require immediate induction of labor, and possibly delivery by forceps or turning.

20. Dr. Hart, in discussing *the causation of the movements of the head at the brim of the rickety pelvis*, states forcibly the importance to the medical practitioner of a knowledge, first, of the anatomy of the pelvis under all conditions, then of operative midwifery. In the rickety pelvis the child's head lies at the brim with its antero-posterior diameter in the transverse diameter of the pelvis, the anterior and posterior fontanelles on a level or nearly so, the sagittal suture transverse near the promontory, or, in the opposite presentation, near the symphysis, a parietal bone presenting in either case. Hence he names the two presentations: 1, anterior parietal-bone presentation; 2, posterior parietal-bone presentation. These, again, are subdivided according as the occiput is at the left or the right. The anterior presentation is far the more common. After labor has begun in the anterior parietal-bone presentation, the forehead dips, the sagittal suture approaches the center of the brim, the conjugate of the pelvis being passed by the bitemporal of the head, which rounds the promontory. In the posterior presentation the opposite course is taken, the head rounding the symphysis. Goodell, Duncan, and others affirm that the pivotal point is near the center of the sagittal suture, and that both symphysis and promontory are rounded. He explains presentation and movements under three heads: 1, the parietal-bone presentation; 2, the dipping of the forehead and shoving of the head as a whole to the occipital side of the pelvis; 3, the rounding of the promontory. The first is due to the shape of the head and the conjugate contraction. Stability is found in this position alone. The dipping of the forehead is, of course, the result of mechanical forces. Instead of the concentrated force of uterine action being exerted equally over the plane of the brim, as in normal labor, the lines of resistance are changed. The fœtal ovoid is molded to correspond to this abnormal plane of resistance. The superficial area of the plane on the forehead side being greater than on the occipital, the former descends, but not to extension—this being merely presentation. The delay of the head at the brim is due both to conjugate contraction and to the time required to mold the fœtal ovoid to this abnormal condition. The rounding of the promontory is best explained by the theory of Lahs. He draws a series of tangents to the head at the brim, and these show the steeper side of the head to be that with the sagittal suture near the promontory or symphysis. The tension being uniform from the uterine contractions, the dropping of the head at the plane of resistance must be where that resistance is least, viz., at the promontory or the symphysis. In the twelve cases of rickety pelvis seen by the author, turning was employed in all, preference being given to the bipolar method. His advice, when called to a case of this kind, is, to chloroform the patient and palpate the head suprapubically, observe the relation between the uterine body and cervix, examine the head bimanually, then note the mechanism, finally measuring the diameters. Conclusions: 1. The parietal bone presenting, turning is indicated. For this to suffice, the conjugata vera must measure two and three quarters inches, the forehead must dip well, the fontanelles be on a level, and some space be left in the transverse diameter on the side of the forehead or occiput. The fontanelles not being on a level, cranioclasm will probably be necessary. 2. The head being impacted, leverage may be applied over the parietal bone which does not present, and the head be dislodged.

26. M. Obissier discusses *the application of the forceps at the superior strait*, speaking first of the difficulty and danger of its application above this point while the head is still mobile. Realizing this, version is often to be preferred, especially in a retracted uterus. In such cases as eclampsia, hæmorrhage from vicious insertion of the placenta, and some other emergencies, he considers the forceps alone equal to the conditions. Hatin's method of application is generally to be preferred, which consists in introducing the left hand in forced supination into the uterus upon its left side, then passing the left blade along it as a director. The hand is then changed to half pronation, being passed behind the head to the right side of the uterus, and the other blade passed similarly to the first. This is more difficult in execution than in description, and as a substitute the author recommends a method which he has himself adopted. The woman being in the classical position, the left hand is carried high up, as if the right blade of the forceps were to be applied. The head is fixed as firmly as possible with the fingers of the introduced hand placed between the head and the uterus. The left blade of the forceps, well oiled, is then passed with the right hand, being gradually worked into position along the left hand as a director, its convex surface following the palm and readily adapting itself, on the left side of the uterus, to the fœtal portion. The left blade being in position and held by an assistant, the right one is passed in the same way to its proper position. The chief advantages claimed are, that the operation is done with a very small expenditure of force, the head remains fixed during the entire process, and one is not obliged to cross the arms and so work at a mechanical disadvantage, as in Hatin's method.

GYNÆCOLOGY.

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12. Dr. Gustav Braun discusses the *operative treatment of recent vesico-utero-vaginal fistulæ during the puerperal* period. He refers to the bad results after some fistula operations, even when most carefully done. Sometimes a fistula will heal spontaneously, or granulation may be excited by frequent applications of nitrate of silver, the patient remaining in bed and the urine

draining away through a catheter kept in the bladder. Cauterization of the edges has also been resorted to with acids and the actual cautery. Such have been the methods of Soupart, Bouqué, Dessault, Karl Braun, and Nélaton. Suture of the edges is recommended by others, Verneuil, Sims, and Charles West preferring to wait six or seven months after the injury has been received, while Baker Brown, Kiwisch, Bozeman, and Hegar recommend operation within a few weeks after delivery. The author thinks the fistula should be closed as soon as possible after its occurrence. In support of this plan he details a case in which he so operated. The patient was attended by him in her third labor, the waters having passed away nineteen hours before her appearance at his clinic. Examination revealed a dead fœtus lying transversely, the back anteriorly. Turning being impossible, decapitation was performed with Braun's hook, the beak of the latter accidentally penetrating the cervix, the anterior vaginal wall, and the bladder, in the course of the operation. The rent measured seven centimetres in the long axis of the vagina, and five in the transverse. The uterus was immediately washed out with a two-per-cent. solution of carbolic acid, a subcutaneous injection of ergotin was given, the bladder and vagina were thoroughly cleansed, the edges of the wound were properly opposed and closed with twenty silk sutures. An injection of permanganate-of-potassium solution was then made into the bladder, and the organ was found to be water-tight. Nélaton's catheter was then introduced and secured. It was removed on the third day, as the urine passed through the wound. The sutures were removed on the sixth day, and a fistula one and five tenths centimetre in length was discovered. This was further diminished by nitrate-of-silver applications and the thermo-cautery, and finally closed by an operation done about three months after the accident was received. [Most of the preceding will not seem new to American gynæcologists. Nor does the author's suggestion—that the edges of a wound, when fresh, stand a better chance of healing after apposition than when they have become hardened or otherwise changed by the action of the urine—impress us as being very profound.] He thinks the first operation upon his patient would have been successful could he have prevented sloughing by removal of the parts too much bruised to heal. He considers that the passage of the lochia forms no obstacle to union.

13. M. Soller discusses the existence of *a valvule in the posterior superior wall of the vagina.* He first relates two cases, in the first of which the patient came to the hospital three months after confinement, with a membranous band or growth in the posterior fornix of the vagina large enough to admit the ungual phalanx of the index finger. This was removed with scissors, no pain and very little hæmorrhage resulting. It was believed that the growth had no relation with her accouchement. In the second case a band was found similarly located, having the appearance of granular elytritis. Behind it were found several pledgets of iodized cotton, which had been placed there several months previously and had been forgotten. The growth or band was removed as in the preceding case. The author states that similar growths have been observed every year for some time at La Charité (Lyons). He finds no literature bearing upon this subject directly, but cites many cases of atresia, more or less complete, of the vagina [which he evidently thinks a kindred condition], drawing from ancient and modern sources. The so-called valvule presents no important symptoms, is discovered only by touch and speculum examination, and does not interfere in any way with menstruation, conception, or labor. [We are inclined to think that the so-called growth was merely an anomalous fold of vaginal mucous membrane, or an accident resulting from labor or the use of vaginal applications.]

23. Dr. Rennert discusses *the treatment after opening tumors of the vagina and uterus containing retained menstrual fluid.* Rupture of the distended tubes is a danger still to be feared, besides that of septic infection. Their distension is likely to lead to inflammation and the formation of adhesions. The blood from the utero-vaginal canal having been discharged, contraction of the walls of the uterus and vagina follows, and this is more decided should vomiting supervene. Näcke's idea that rupture becomes more probable, because when the uterus and vagina are emptied the intra-abdominal pressure is lessened, and so the force acting within the tube is farther from equilibrium with the force without the tube than before the evacuation, is pronounced untenable, since the pressure within the tube will not be materially increased by the slight lessening of the intra-abdominal pressure; and, besides, the pressure of the fluid withdrawn being now removed, the two opposing forces (within and without the tube) have scarcely changed their relations. Septic processes are likely to lead to ulceration and perforation of the tube walls. When a case of this kind is discovered, he advises operation as soon as possible, and it is much better for the patient if this can happen before there is great accumulation, and so distension of the tubes. In operating, the patient should be deeply narcotized, this precaution being considered all-important. The policy of gradual evacuation is problematical, on account of the danger of exciting septic processes at once. From his experience in a case narrated, he is convinced of the value of permanent irrigation, as well to anticipate infection as to oppose the danger from dilated tubes. In his case, that of a girl sixteen years of age, with whom menstruation had never occurred, there was double atresia of the vagina at the lower end of the tumor and at the vaginal entrance, and there were the usual symptoms in cases of retained menstrual blood. He operated in an emergency, menstruation having come on, and the inner atresia having ruptured, with the trocar-knife and the hook- and pipe-cannula recommended by Breisky. Cold irrigation was kept up for the first twelve hours with a two-per-cent. solution of carbolic acid, for the next four days with a ten-per-cent. solution of hyposulphite of sodium, the following two days with water alone, after which it was discontinued. The discharge of retained blood continued five days, and menstruation one day longer. The patient did perfectly well, and satisfied him with the value of the method of treatment followed.

35. M. Dezanneaux read a paper before the the Société de Chirurgie, January, 11, 1882, on *the enucleation of intra-uterine fibromata*, the conclusions of which are: 1. In fibrous tumors originating in the uterine parenchyma, and developing into the uterine canal or into the vagina, enucleation is the only operative procedure applicable. 2. Operation is indicated only when these growths threaten life. 3. Interstitial fibromata showing a tendency to spontaneous enucleation, by thinning of the capsule and descent into the uterine canal, are the more easily removed, regard being always had for the general condition of the patient. 4. The finger is infinitely superior to all instruments for operation. 5. When the finger is used, the nail should wound only the tumor. 6. When the finger can not reach the upper attachments, torsion and traction should be used. 7. The tumor is then seized with forceps and removed from the base. The use of the écraseur is sometimes desirable, especially when a portion of the growth has already been removed. 8. Antiseptic precautions should be observed, and ergotin administered as soon as possible after the operation. ═══ The discussion touched upon the value of the écraseur, the dangers of torsion and traction, and the difficulty in diagnosis from inverted uterus. Certain members maintained that error in diagnosis was impossible with ordinary precautions. [This suggests a case of fibroid polypus removed a few weeks since at the Woman's Hospital, where the same question arose. It was not until the body of the tumor was cut into with scissors and its structure examined that the operator felt confident in proceeding with its removal, notwithstanding the fact that the indications all pointed to its being a polypus and not the inverted uterus.]

40. M. Cayla reports a case of *tuberculosis of the Fallopian tubes* followed by peritonitis and death. The patient, a domestic, twenty-two years of age, with the appearance of good health, came to the Hôpital Cochin. Nervous crises had troubled her for several years, and had gradually become more frequent. The symptoms manifested were those usual to hysteria. After two months' sojourn at the hospital, typhoid symptoms appeared, and for eleven days the case was treated as one of typhoid fever. Peritonitis then set in, continuing twenty-four days. This was accompanied by incessant vomiting and diarrhœa, also insufficiency of urine. Palpation of the abdomen gave a sensation of softness and peculiar resistance. Death came on the fortieth day after the attack. The autopsy showed extensive peritoneal inflammation with adhesions, fatty liver, healthy uterus and bladder, thickened broad ligaments, enlarged tubes buried in false membranes six millimetres in diameter, their canal filled with cheesy material. The other organs examined were healthy. The tuberculosis had its origin in the tubes, and extended to the peritonæum, the lungs and other organs usually affected remaining intact, in opposition to the law laid down by Louis.

54. M. Féré discusses *the so-called ovarian pain of hysterical women*, and considers that its seat is, in fact, in the ovary. Some have considered this pain cutaneous, others muscular. Charcot, indeed, had advanced the idea that the ovary was the source of the trouble, and confirmed it by abdominal palpation; but other investigators denied that the body touched was the ovary, or that it was, of necessity, the source of the continual hypogastric pain, even if it could be reached by abdominal palpation. Matthews Duncan especially held the latter view. It seemed that the question could not be fully decided, inasmuch as free abdominal palpation, together with rectal and vaginal touch, was considered somewhat dangerous with the class of people so affected. M. Budin and his pupil, M. Chaignot, have made some investigations in this direction, especially upon pregnant women, with whom the ovaries become drawn up from their ordinary bed with the development of the uterus, and are both accessible and recognizable by abdominal palpation. Chaignot's paper is entitled "Study upon the examination and sensibility of the ovary, and especially upon ovarian pain during pregnancy." The case forming the basis of the paper was that of a hystero-epileptic who had left Charcot's service at the Salpêtrière in June, 1880, cured. Some months after her discharge she again became hemianæsthetic on the right side, hypnotizable, and pregnant. The nervous insensitiveness remained throughout pregnancy, but the epileptic attacks did not recur. She re-entered the Salpêtrière at the eighth month of utero-gestation, and was subjected to an examination of the ovaries, which was painful and followed by uterine colic the next day. While the colic lasted she was not susceptible of hypnotism, but became so again after it disappeared. The area of pain was about two centimetres in diameter on either side, not far removed from a line drawn between the umbilicus and the anterior superior spinous process of the ilium. Pressure upon these points after hypnotism would awaken the patient, while vaginal examination had no such effect. The circumstantial evidence was strongly in favor of the fact that the ovaries lay under these sensitive areas; still, the organs could not be absolutely isolated with the fingers. Also, the sensitive areas corresponded to the position which the ovaries should take at this period. When labor came on, the sensitive areas were found somewhat lower, corresponding to the descent of the uterus. During labor, hypnotism by any means was impossible. When the uterine contractions were in progress, a small ovoid tumor could be felt along the surface of the uterus. Pressure upon it produced movements of deglutition and other phenomena similar to those provoked at earlier periods. This was perceived only on the left side. After delivery the round ligament could be felt, but the bodies supposed to be ovaries had disappeared. Hypnotism was possible twenty-five minutes after labor ceased. Five minutes later the sensitive areas were again discoverable, with the same dimensions (two centimetres broad), on either side, somewhat lower than at the last examination. This descent continued to a moderate extent, and the areas also became less and less sensitive, except as deep pressure was made. Hypnotism again became possible, and, after its accomplishment, awakening could be secured by vaginal pressure to the left side, but not to the right, in the same manner as it had been formerly accomplished by abdominal pressure.

55. Dr. Barnes read a paper before the Royal Medical and Chirurgical Society, January 24, 1882, on *hernia of the ovary*, in which he observes that scant advantage has been taken of the opportunity offered for physiological observation in bringing the ovary to the surface of the body. He related a case under his own observation, in a single woman forty-one years of age, who sustained a rupture in the left groin at the age of twenty-four, with tenderness and pain augmented during menstruation. The ovary was removed; result not reported. He considered congenital hernia of the ovary the most frequent, and that hernia of the uterus was preceded by that of the ovary; that swelling and tension of the ovary were concurrent with the change in the vascular system just preceding menstruation. He thought Battey's operation indicated in such cases, and that sphygmographic observations should be made upon them. ═══ In the discussion a case was referred to where hernia into Douglas's pouch existed, and pressure upon it caused sexual excitement. Nausea is also a result of such pressure. In the inguinal variety the peritonæum may or may not be prolapsed. In congenital hernia the tube generally accompanies the ovary; in those occurring later in life this is not apt to be the case. Trusses are sometimes worn with comfort. The larger number of inguinal ovarian hernias are irreducible. The left ovary is more frequently prolapsed, the cause being, perhaps, that the round ligament is more lax than on the right side.

QUARTERLY REPORT ON OPHTHALMOLOGY AND OTOLOGY.

No. IX.

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1. Fuchs describes *an entoptic appearance of curved lines observed in certain movements of the eyes*, and offers the following explanation: In very rapid divergence of the eye, its posterior pole is turned somewhat violently inward. This can not end without pulling on the optic nerve, which is propagated to the neighboring retina. The shock to the latter is recognized as a ring of light. In the region of the posterior pole, where the retina is particularly thin, fine folds occur in the retina, which entoptically are perceived as curved lines. If the shifting of the retina outward by the crowding of the optic nerve is compensated in the macula lutea by the formation of folds, then those parts of the retina which lie between the external margin of the disc and the inner edge of the macula must undergo a shifting upon the base equal to the entire length of the shortening. Hence it might be thought that, even in the case where the entire shifting amounts only to one tenth of a millimetre, it would be sufficient to tear out the rods and cones from the pigmented epithelial cells, and thus destroy the external retinal layers. But, in order that this conclusion should be a sound one, the shifting should occur between the bacillar layer on one side and the layer of hexagonal pigment cells on the other, which is certainly not the case; it is much more probable that the shifting extends through the entire thickness of the retina and choroid.

3. In a short paper upon *the relative size of after-images*, Emmert comes to the following conclusions: The linear dimensions of an after-image are equal to the linear dimensions of the object, multiplied by the distance at which the after-image is observed; that is, multiplied by the square of the distance at which the object was observed, the whole divided by the simple distance. On the contrary, the superficial area of an after-image, at least of objects with four parallel lateral surfaces, is equal to the length of one side of the object, multiplied by the distance at which the after-image is observed; that is, multiplied by the square of the distance at which the object was observed, divided by the simple distance, the whole raised to the square.

7. In this second paper upon *the chromatic systems* Donders finishes the subject. The double spectroscope which he employs serves for a number of purposes. It is useful for reviewing the spectrum and studying separately each of its parts; for determining the limits of the spectrum, the relative luminous intensities, and the position of the greatest; for comparing the colors and the relative saturation of the two tones of the same color; for mingling two colors of the spectrum, the fusion and its elements being seen simultaneously; for determining complementary colors and the necessary proportions for forming white, etc. Donders's general conclusion is that we have no right to consider the colors which are wanting in the different forms of dyschromatopsia as the fundamental colors of the normal system. The retina was created, not made; it is not an instrument of three strings, one of which is broken in those who are color-blind. It is a living instrument, the three strings of which, keyed to a different note, are developed in mutual relations.

8. Kuhnt's paper on *colored light-induction* is divided into three parts. In the first he considers simultaneous light-induction, and, from experiments of various kinds, deduces the general formula that each color possesses the power of inducing only its own color-quality. In the second section he takes up successive colored light-induction, and from experiments deduces the general formula that for a fixation of forty-five seconds the color of the after-image of a black velvet disc is always like or equal to the ground-color of the original. In the third section he compares the color resulting from successive induction with an objective color, and concludes from his experiments that the color resulting from successive induction appears almost as red as the disc of comparison, only a little darker and less saturated. The same results appeared from his experiments with green, yellow, and blue.

9. In their *study of the visual field for colors*, Macé and Nicati prefer the method of examination by colored glasses: 1, Because colored papers are very soon dulled or tarnished by use, and no longer furnish results that may be compared together; and, 2, because colored glasses do not narrow the visual field in the normal state and with good illumination; while a slight narrowing or limitation of the field may be observed with even the brightest colored papers. By a bright and a moderate illumination, the normal limits of the visual field are nowhere reduced by the interposition of glasses, but they are diminished by a feeble illumination, though very unequally, the limitation for red being very markedly greater than for the other colors.

10. The *color-sense measure* devised by Oliver consists of a blackened perforated disc, in which is inserted a movable graduated slide; the disc is then bolted to two circular cards, upon which are placed known colors. By the rotation of these color-bearing cards and the movement of the slide, we can accurately determine the exposed area, the amount being registered by the graduated strip on the face of the slide. This strip has upon it an artificial division of the diagonal of the entire color square into nine equal parts, each divided into ten equal parts. Each of the sides of the color square is equal to ninety millimetres, and, as the strip measures the diagonal, we by this measure possess an absolute answer for the actual increase of the side of the square in millimetres. The three primary colors and blue have been placed on the first card. The second card has been added, as it is deemed important to have a series of confusion colors in cases of color-blindness.

12. In speaking of *the most suitable methods of testing the color-sense*, Kolbe thinks that Holmgren's method is the only one which admits of rigid control, but its exclusive use is not to be recommended, as it has not proved trustworthy in the hands of every observer. It should be used in connection with Stilling's method. For the quantitative determination of the color-sense, Kolbe recommends Weber's tablets as the best that we have for this purpose, all things considered.

13. Holmgren undertakes to answer the question, *how the color-blind see the different colors*. Since it is impossible for one person to make himself master of a color-conception in another, he thinks that it can not even objectively be proved that all persons with normal eyes see the different colors in the same way; although it may be assumed that the quality of the different principal colors is the same for all persons who show the same conception of colors in general. A person with normal eyes must, while retaining his own color-sense, be put in a position to see with a color-blind eye, and compare the impressions on that with those on his own normal eye, in order to answer the question at the head of this article. A combination of a normal and an abnormal eye with the same brain is not impossible, as we know from cases of one-sided color-blindness. Holmgren has carefully examined two such cases, the principle of the test being to let the normal eye control the perception of the abnormal one, and bring the result into a form that was perfectly plain to other normal-sighted persons. In every instance he lets the person in question point out an objective color with his normal eye for every one of his conceptions with his abnormal one.

17. Parinaud's paper upon *the visual defects which diminish the facility of recognizing colored signals* is based mainly upon the results obtained by a new method of examination. He considers: 1. Congenital color-blindness. 2. True acquired color-blindness. 3. False acquired color-blindness. 4. Relative dyschromatopsia. Under the latter head he includes all the visual defects which are capable of diminishing the faculty of recognizing signals, without involving the chromatic sensibility or the sensibility for light. These are especially errors of refraction and alterations in the media. The instrument which Parinaud uses in his investigations is both a chromoptometer and a photoptometer. By its aid the sensibility for color may be explored in four different ways, based upon the variations of intensity or of the illumination of the color, and upon the variations of the surface or of the angle of vision. Of these four ways, that which rests upon the variations of intensity of transmitted light is the most important, for it admits of the recognition of all forms of color-blindness, and of discovering the slightest degrees of alteration in the color-sense. The diagnosis here rests upon the almost constant errors of denomination; upon the multiple denominations given to the same color according to its intensity; upon the confusion of red and green, which is so characteristic of color-blindness; upon the dissociation between the luminous and chromatic sensation; and upon the absence of chromatic and luminous sensation, with the red saturated under a feeble intensity. This method of examination unites the advantages of denomination and comparison with a new diagnostic element, that of dissociation of the luminous and chromatic sensations. It will reveal all the visual defects which may in any way affect the faculty of recognizing signals, it is rapid in its employment, and it does not demand any special knowledge of ophthalmology. It comprehends two tests, one for colors, the other for distant visual acuity; and the test for colors determines at the same time the changes in the chromatic sensibility and those in the luminous sensibility.

18. Thomson's paper upon *the examination of railway employees as to color-blindness, acuteness of vision, and hearing* is very practical. His conclusions are as follows: 1. There are many employees who have defective sight, caused either by optical defects, which are perhaps congenital, and which might be corrected with proper glasses, or due to the results of injuries or diseases of the eyes, remediable or not by medical or surgical treatment. 2. One man in twenty-five will be found color-blind to a degree to render him unfit for service where prompt recognition of signals is needed. 3. Color-blindness, although mainly congenital and incurable, is sometimes caused by disease or injury, and precautions might be needed to have either periodical examinations or to insist upon it in cases where men have suffered from severe illness or injury, or where they have been addicted to the abuse of tobacco or alcohol. 4. The method, when adopted, will enable the authorities to know exactly how many of their employees are satisfactory in every particular as to sight and hearing. 5. The entire examinations can be made at the rate of at least six men an hour; while that for color-sense alone can be done in a very few minutes for each man by an intelligent employee. 6. To secure the confidence of the employees, and of competent scientific critics, as well as of the public generally, it is advisable to have some official professional specialist, to whom all doubtful questions could be referred, and who should have general supervision of the entire subject of sight, color-sense, and hear-

ing. 7. From the impossibility of subjecting the immense number of employees on our large railways to the inspection of the few medical experts available, some system of testing by the railway superintendents has become a necessity.

21. In a short paper upon *the lesions of the eyes in yellow fever*, the author calls attention to the hyperæmic condition of the eyes on the first or second day of the fever. The eyes appear red, and lachrymation is abundant. In the second stage of the fever the redness of the eyes is diminished. The partial or complete loss of sight without any visible pathological lesion, as a concomitant of yellow fever, is a new point in ophthalmology, and Fernandez cites three cases, two of which terminated fatally. In the first case, the patient recovered, and the vision, which had been lost on the fifth day, was regained on the seventh.

24. Mandelstamm describes two forms of *trachoma*, which may be clinically differentiated the one from the other. In one form the development of adenoid tissue is predominant; this is the follicular form, frog-spawn or trachoma-granules. In the other form the development of epithelium prevails; this is the papillary form with marked tendency to affections of the cornea and the development of pannus. Besides these two distinct forms, there exist also cases made up of a mingling of the two forms.

27. Burnett calls attention to what he calls *circumcorneal hypertrophy of the conjunctiva*, which is chiefly characterized by the presence of a yellowish-gray elevation at the limbus corneæ, and encroaching more or less on the surface of the cornea itself. Its breadth varies from 1 to 3 mm. It has a soft, succulent appearance, but no indication of pus formation or ulceration. The conjunctiva itself usually appears thickened and dull. In the negro race there is a brownish discoloration of the conjunctival tissue, most intense at the scleral base of the mass and gradually fading away toward the equator. This discoloration is not regular in its distribution, but seems to be collected in large masses near the base of the elevation. Associated with these circumcorneal changes there are alterations in the palpebral conjunctiva, in the shape of papillary excrescences, which occasionally resemble fine meal-grains. The conjunctival surface looks as if covered by a thin layer of milk. Another peculiarity of the disease is its aggravation during the hot months of the year. The subjective symptoms are almost identical with those of the worst cases of hyperæmia of the conjunctiva. The disease may disappear without leaving any trace; or the corneal limbus may become permanently thickened, giving the cornea a narrow, contracted look; or it may result in genuine corneal opacity. It seems to be a disease mainly of childhood. We know nothing of its pathology, and almost as little in regard to its treatment.

29. Sattler's article on *the nature of trachoma* is of considerable pathological interest. He regards the trachoma granules as a characteristic and specific product of the trachomatous process. In his opinion, lymph-follicles do not exist in the normal conjunctiva. He has examined the secretion from the different phases of the trachomatous process, and has never found but one form of schizomycetes, the circular micrococcus, which is of somewhat smaller size than the micrococcus of blennorrhœa, but in other respects exactly like the latter. Isolated micrococci occurred but rarely. The division of the micrococci occurred very rapidly, so that sometimes it was impossible to note it. The isolated micrococci never touched each other, and when they occurred in groups they seemed to be surrounded by a clear court or envelope. This peculiar arrangement is characteristic of the trachomatous secretion, as it is of the secretion in blennorrhœa neonatorum. If trachoma be a localized infecting disease, and these schizomycetes the bearers as well as the producers of the infection, we must not look for the origin and place of development of these organisms in the secretion of the mucous membrane, or even in the epithelium, but in the tissue of the conjunctiva itself. The same micrococci which are met with in the secretion occur also in the trachoma granules, not only upon the nuclei, but also in the intervening spaces, both isolated and in groups. In the tissue surrounding the trachoma granules are to be seen small groups of nuclei, some filled with, others covered by, micrococci. Another noticeable appearance in many cases of trachoma is a more or less extensive infarction of the lymphatics, with elements resembling those of infiltrated connective tissue. In old cases of trachoma there is often seen a considerable and irregular thickening of the adventitia of the vessels, and in many an obliteration of their caliber and conversion of the vessel into a solid cord. Sattler thinks that in very many cases the process eventually is a gradual disappearance of the trachoma granules, ending in atrophy of the conjunctiva. He thinks further that it is not improbable that the exciting cause of trachoma is originally from some genital secretion, and this latter from a micrococcus. The reason why in these cases a distant infection occurs so rarely is, that the schizomycetes of conjunctival blennorrhœa soon lose in a dried condition their specific properties, or at least the latter become so modified that, in the struggle for existence with other schizomycetes and tissue cells, they die.

30. In discussing the subject of *the purulent conjunctivitis of infants*, Baudry concludes that the majority of cases occur in infants whose mothers have or have had a urethro-elytritis. A certain number of infants born of such mothers do not contract purulent conjunctivitis *immediately* after birth, but only after a certain time has elapsed. A certain smaller number of infants, whose mothers have no elytritis whatever, contract purulent conjunctivitis. The only efficacious treatment is the cauterization of the diseased surface with silver nitrate, combined with frequent cleansing of the eyes with antiseptic lotions, cold applications, and scarification. He advises cauterization twice a day with a solution of silver nitrate, one to forty. As antiseptic lotions he recommends diluted chlorine water or alcohol, and solutions of carbolic acid, benzoate of sodium, and salicylic acid, applied cold and constantly renewed.

32. Tweedy recommends the local application of *quinine sulphate in diphtheritic conjunctivitis.* He uses a lotion of four grains of the drug to the ounce of water, and a minimum of dilute sulphuric acid, using it constantly in the eye, and keeping compresses soaked in it upon the closed lids. He removes the superficial disintegrated portions of the exudation as fast as formed by means of wet lint. He believes the quinine to be a specific in the diphtheritic exudation, checking and controlling the inflammatory process, and limiting the inflammatory neoplasm. He does not believe that the bacteria or micrococci destroy the cornea. He emphasizes the fundamental difference between the pellicular membrane of ordinary purulent ophthalmia and the parenchymatous pseudo-membrane of diphtheritic conjunctivitis. The two forms are essentially distinct and separate in their pathological as well as in their clinical relations. The pellicular form is amenable to treatment, and need not give much anxiety, while the pseudo-membranous is terrible in its ravages and appalling in its possibilities. The difference is appreciable from the earliest to the latest stages. Even when the pseudo-membrane is thin and detachable, its removal does not expose a swollen and vascular mucosa, but a smooth, pale surface, often of a dull leaden hue. Later on the difference is still more marked; the membranous form affects only the epithelial layers of the mucous membrane, whereas the pseudo-membranes always invade the deeper texture, and heal by cicatrization.

33. Fontan describes some cases of *adeno-papilloma of the conjunctiva*, and regards it as a rare disease. In one of the cases examined microscopically, the glandular hypertrophy was the most marked feature present. The development of the papillæ was marked but secondary in importance. The remaining fibrous and vascular elements were entirely accessory. He regards them as not difficult of diagnosis, considers them benignant growths, but believes that they may, in rare cases, undergo transformation into epithelioma. They should be removed with the knife.

35. In a paper upon *epithelial patches on the cornea*, Hocquard reports three cases in which the disease was characterized by the presence upon the transparent cornea of white patches slightly projecting, with sharply defined though irregular contour. He distinguishes two forms which he calls *hyperplastic epithelial patches* and *emulsioned epithelial patches.* In both varieties there is found beneath the white substance, removed by scratching, a slight, superficial ulceration, scarcely more than an erosion, toward which are seen converging some conjunctival vessels. Without proper treatment the disease may last indefinitely without yielding in the slightest degree to either cauterization or scraping. Two conditions must exist, supplementing each other, before these epithelial patches can be developed: 1, A modification of the anterior layers of the cornea; 2, a slight irritation long continued, acting upon the surface of the transparent membrane thus transformed. As treatment, Hocquard recommends daily scraping of the patch, followed by brushing the ulcerated corneal surface with a brush soaked in ether.

37. Damalix regards *massage of the eye* as a very good method of treatment in the chronic keratitis of young children. It is an easy procedure, the motion is rapid and painless, and is useful in all varieties of chronic corneal affections. He believes, with Pagenstecher, that it is well to associate with the massage the use of the ointment of the yellow precipitate and a general constitutional treatment.

39. Königstein's conclusions as to *the nerve distribution in the sclera* are, that the human sclera possesses not only nerves which traverse it, but also nerves of its own, which end in it. He is not able, however, to describe the manner of their termination with any degree of positiveness, but thinks that they are connected with the compound corpuscles, as they are in the cornea.

41. Michel enumerates the following among *the pathological changes in the iris as the result of disease:* Extensive hyaline thickening of the endothelium; detachment of the epithelium; proliferation of the nuclei of the endothelium in those parts which he describes as reticulated glandular tissue; frequent disease of the lymphoid apparatus of the iris with disease of the general lymphatic apparatus of the body. The vessels also are almost always affected by the pathological changes in their vicinity.

45. Haensell's communication on *the inoculation of syphilis in the iris and cornea* of the rabbit is interesting. The changes produced here strongly resembled the syphilitic affections observed in the eye of man. In every case there was developed, after a period of incubation of about a month, a subacute iritis; then followed, in a few days, small vascular nodules like gummata, which are more correctly described as syphilitic papules.

50. In a paper upon *cloudiness of the cornea in glaucoma* the author describes the changes in the cornea under the name of œdema. In corneal sections may be seen spaces between the lamellæ, which are either entirely empty or filled with a coagulated fluid. The cornea is equally œdematous in all its layers only in rare cases, the anterior layers being generally the most œdematous. The œdema also collects between the anterior layers and Bowman's membrane. In œdematous corneæ Bowman's membrane is traversed by numerous very fine, dark lines from behind forward, which pass through the membrane to reach the epithelial cells. In addition, very marked changes in the anterior epithelium are occasionally met with, such as very small drops lying upon Bowman's membrane between the feet of the basic cells; these drops are generally round, though sometimes elongated and branched. Their contents are either homogeneous or finely granular. These drops are usually situated at the anterior end of the nerve channels. All these changes are nothing else than an œdema of all the corneal layers, which is the immediate cause of the glaucomatous corneal opacity, by the interposition of fluid layers of a varying thickness, of less refractive power than the corneal lamellæ.

54. Berger reports the results of his investigations upon *the lenticular capsule.* In transverse sections of a normal human capsule he has not been able to discover any longitudinal striations, though he has seen them in pathological lenses. By macerating the capsule in a solution of permanganate of potash, however, he has observed this longitudinal striation. As the result of his investigations, he concludes that the capsule of the lens consists of lamellæ, and that those which are upon the external surface of the lenticular capsule are connected with the zonule of Zinn. Furthermore, these lamellæ are connected together by a cementing substance. This he thinks corroborates the correctness of the statement that the lenticular capsule belongs to the class of connective-tissue structures.

60. Derby reports the *statistics of one hundred cataract extractions* in which myotics were employed, anæsthetics were avoided, and the lids were kept closed for seven days after the operation without any examination of the eye, and contrasts them with a similar number of cases in which anæsthesia was employed, mydriatics used, and the eye was examined within a shorter period after the operation. In the first one hundred cases, ninety-nine recovered an appreciable amount of useful vision, while in the second one hundred, ninety-one were thus fortunate. All the cases were uncomplicated senile cataracts, with good perception and projection. Derby uses a one-per-cent. solution of eserine, or a mixture of eserine and vaseline of the same relative strength, an hour before operating. A fixation-forceps is employed to hold the eyeball until the counter-puncture is completed, and is not again used during the operation. The moment the iridectomy is completed the speculum is removed and entirely dispensed with. The upper lid is then raised and gently held against the edge of the orbit, while with the other hand the capsule is first opened, and the lens then pressed out by means of the rubber spoon applied on the outside of the lower lid. The vision is then tested, the corners of the iris are replaced with the rubber spatula, and a light compressive bandage is applied. This bandage is changed the same evening, and afterward once a day. The patient sits up in bed that afternoon, gets up in forty-eight hours, and the bandage is removed and the eye opened for the first time on the eighth day. No antiseptic precautions were taken in any of these cases.

62. Kuhnt finds that in *the fovea centralis* there is not a simple thinning of the inner retinal layers, but that the latter cease completely, except the bacillar layer. Only the cones, the external-granule, and the external-fiber layer persist, and the limitans interna joins them almost immediately. The nerve fibers cease as a distinct layer by gradual thinning, and certain changes are noticed in the ganglion-cell layer which vary somewhat in different cases.

63. In a paper on *so-called concussion of the retina*, Herdegen distinguishes two groups where the eyeball alone is directly injured; severe cases with complete loss or an excessive diminution of vision, usually of long duration and accompanied with defects of eccentric vision; and, secondly, slighter cases of trivial and brief diminution of central vision alone. When the eye is struck a severe blow, the retinal blood-vessels are instantaneously deprived of their blood, a purely mechanical phenomenon arising from compression of the eyeball and lasting but a few seconds. The vessels then fill again, apparently to an absolutely normal degree. A further direct result of the blow is a distinct diminution in the size of the pupil. The episcleral vessels, moreover, show a decided amount of congestion, which, as well as the contraction of the pupil, usually increases in the early hours after the injury. In addition to the contraction of the pupil, the sphincter of the iris shows an abnormal resistance to atropia. Finally, central vision is at once reduced. In about an hour after the injury we begin to see changes in the retina, in the shape of irregular gray dots, which gradually coalesce into a continuous opacity. The opacity slowly changes color, becomes brighter, and sometimes very white. The retina sometimes contains hæmorrhagic effusions, and may be ruptured. Berlin concludes that the disturbance of vision is generally independent of the retinal opacity. Several cases of loss of vision have been recorded without any of these alterations in the retina. Moreover, the disturbance of vision and the retinal lesion do not develop simultaneously or side by side. For, while vision is at its worst directly after the injury, then improves rapidly for a short time, and finally very slowly, the retinal opacity does not appear till one or two hours after the lesion, at a time when vision has already improved. On the other hand, the opacity disappears in a day or two, while it takes a long time for vision to be restored. Finally, observations show that the disturbance affects central vision only, and is entirely independent of the locality of the opacity. In the slightest form of disturbance of vision caused by blunt force, there is a moderate diminution of central vision, without disturbance of eccentric vision, but with a tendency to rapid recovery, all depending on a transitory traumatic lenticular astigmatism. A majority of such cases show some retinal opacity as well as a contraction of the pupil, though occasionally the pupil loses all capacity for excessive contraction or dilatation.

64. Eales has a short paper upon *primary recurrent retinal hæmorrhage in young men*. In every case the left eye was primarily and chiefly affected, and when first seen the vitreous was opaque from hæmorrhage into it. There was often a rapid diminution of the opacity of the vitreous, followed by a sudden recurrence of opacity from fresh hæmorrhage after a few weeks or months. In each case vision appeared to suffer only in proportion to the opacity of the vitreous. The hæmorrhages were usually confined to the extreme periphery of the retina. The extravasations were almost invariably large and of round or irregular form, not flame-shaped. They could often be seen to have proceeded from venous radicles which were concealed by them. The ultimate result of these repeated extravasations was the formation of large, whitish, and sometimes quite glistening patches of degeneration at the periphery of the retina, with some degeneration of the choriocapillaris, and occasionally small, round, circumscribed areas of detachment of the retina. On the areas of detached retina a branch of the retinal veins was invariably found, and more than once a many-tailed opacity of the vitreous was found to be attached to the veins at the most bulging point of the detachment. The attacks appear to have been excited by the recumbent posture, stooping, coughing, laughing, and especially over-exercise. The patients were all young men under twenty, had all been subject to epistaxis, and also to constipation for several years. There was no evidence of high arterial tension. Puffiness and discoloration around the eyes were often noticed, and were sometimes more marked just previous to an attack of retinal hæmorrhage. Eales attributes the combination of conditions to a neurosis affecting both the circulatory and digestive systems, leading, on the one hand, to partial inhibition of the muscular movements of the bowels, and to a vaso-motor contraction of the vessels of the alimentary canal, with inhibition of its secretory functions; and, on the other hand, to a compensatory dilatation of the systemic capillaries, especially those of the head, causing over-distension of the venous system and capillaries of the retina, with liability to rupture on the occurrence of any intensifying cause. The fact of the fathers having been often subject to epistaxis, while this retinal hæmorrhage appears to occur only in young men, suggests that this neurosis is inherited and transmitted in the male line.

66. In speaking of *retinitis pigmentosa and allied affections, as illustrating the laws of heredity*, Hutchinson thinks it quite possible that further research may prove that there is a form of hereditary tendency to nerve deafness which runs its course in more exact parallel with retinitis pigmentosa—that is, far more slowly than the ordinary form which results in deaf-mutism. In some respects retinitis pigmentosa stands as an isolated malady which in hereditary descent keeps its type firm, but in other respects we might make a great mistake if we regarded it as a well-bred member of a family group, in which there were other close relatives, and possibly some mongrels. Though most of the cases of retinitis pigmentosa run a well-marked course, there are other forms of disease which deviate from it; and to this class belong certain forms of choroiditis or disease of the optic nerve occurring in early life, and with the history of nerve disease in the family, or possibly of insanity. Not a few cases of this kind seem to show that certain marriages without the least taint of consanguinity are as certainly prejudicial to the offspring, and produce, indeed, very similar consequences to those which are attributed to that cause.

68. Abadie considers that, in *the treatment of detachment of the retina*, the object to be gained is to attach the retina to the choroid without provoking any considerable injury to the enveloping membranes of the eye. In recommending galvano-puncture as a method of treatment, he hopes to provoke artificially foci of chorio-retinitis which will fix the retina firmly to the choroid. He plunges the needle through the sclera just at the site of the detachment, of course avoiding the course of the muscles. On examining the eye with the ophthalmoscope, several days afterward, there may be seen a whitish blotch surrounded by a blackish areola, which is the patch of chorio-retinitis wished for. He has done the operation eight times. In six cases, where the detachment was extensive, there was a certain amount of amelioration for two or three weeks, but the detachment subsequently recurred.

69. Oeller's paper on the *hyaline degeneration of vessels as the cause of saturnine amblyopia* is interesting from a pathological stand-point. It is based on a careful examination of both eyes of a patient who had died from lead-poisoning. The degeneration had involved the smaller arteries and arterioles of the optic-nerve trunk, retina, and choroid, as far forward as the ora serrata, and to a large extent also the capillaries. The nature of the disease was an endarteritis obliterans. The final result was complete obliteration of the caliber of the capillaries, their walls being changed into a completely homogeneous solid mass, without a trace of structure, the original form of the vessels being in places retained, while in others there was a marked knobbed appearance. The hyaline degeneration ended sharply, as if cut off. The same course was observed in the arterioles as in the capillaries. In the arteries the characteristic arrangement of the nuclei of the muscular coat ended suddenly in places, and the caliber of the vessel became almost doubled. In place of the middle coat there was seen a very delicate membrane, in which only rarely could a nucleus be seen. The lamina elastica was absent. The space between the atrophic media and the detached epithelium was generally found empty, but in places there were observed a few finely granular masses and some red blood-corpuscles. The loss of elasticity of the vascular wall and its transformation into a rigid tube, the narrowing of the caliber and the resulting increased resistance to the blood-current, had produced a tardy circulation, and ultimately thrombosis of the vessel. Thrombi were met with in large numbers and in all stages throughout the whole of both specimens examined. The thrombi had in places undergone hyaline degeneration, and these thrombotic and degenerated vessels were very fragile. Some of the thrombi had not undergone hyaline degeneration, but had softened, and the two processes were sometimes observed in the same thrombus. The median coat in nearly every instance, however, showed signs of hyaline degeneration. In the retina there was marked œdema of the external layers, especially of the inter-granule layer. but this was not continuous. This œdema pushed aside the connective-tissue framework, and formed spaces which seemed to be filled with a serous fluid. The inner layers of the retina were generally free from œdema, except in the vicinity of the papilla. There were numerous capillary hæmorrhages scattered throughout the retina and choroid. In the granule layers were found numerous round or oval, peculiarly glistening, hyaline scales, which were colored brilliant red by eosine, which sometimes reached a considerable size. There were also found here more or less extensive deposits of fibrine coagula. In the vitreous, the characteristic cells seemed to be increased in number, but their nuclei were well preserved, and Oeller could not convince himself that they had taken part in the process. Upon the lamina vitrea, from the entrance of the optic nerve to the anterior end of the choroid, could be seen very small hyaline scales, sometimes grouped together, sometimes isolated, not much elevated, and generally covered by the intact epithelium. They were usually of about the size of the red blood-corpuscles, though some were three or four times as large.

71. Kuhnt's views of *the physiological excavation of the optic nerve* differ from those of Mauthner. The former has demonstrated that in five eyes, with perfectly normal vision and normal visual field, which were carefully examined with the ophthalmoscope, a subsequent microscopical examination showed that the excavation seen with the ophthalmoscope was not only present, but in depth and extent agreed completely with those determined by the ophthalmoscope.

72. The article upon *the eye and the spinal cord* is a very long, involved, and badly-arranged dissertation upon a most important subject. The authors have not been fortunate in their manner of presenting the subject, and a satisfactory abstract is almost an impossibility. By a spinal optic-nerve affection they understand one which stands in direct connection with the primarily diseased spot in the spinal cord through the medium of a vaso-motor disturbance of innervation. This may be acute or chronic, and when acute it may be cured or become chronic. A sharp division between the acute and chronic forms does not exist. In many cases which present themselves only when the optic-nerve atrophy is established, an inflammatory origin may be distinctly traced; but in other cases we are obliged to accept the theory of a primary atrophy. In the majority of cases of spinal neuritis, capillary hyperæmia as well as hyperæmia of the larger vessels is a prominent symptom, while the signs of swelling are not marked. The inflammatory process is usually limited to the papilla. The color of the disc varies from light whitish-gray to deep gray. Red-green blindness is present, and is usually accompanied by sector-like defects of the field. There is often a marked disproportion between the ophthalmoscopic picture and the functional disturbance, but we are often able to demonstrate that the visual defect corresponds to a definite atrophic portion of the papilla.

In spinal optic-nerve disease there is a characteristic contrast between limitation of the peripheral visual field on the one hand, and marked or slight diminution or else maintenance of central vision on the other, which does not exist in meningeal optic-nerve atrophy. The slight disturbance of the color-perception which sometimes exists can only be explained by supposing that an obstruction lies somewhere in the course of conduction, which can only be overcome by a prolonged irritation. The section upon the condition of the pupil in disease of the spinal cord consists in a discussion of the work done on this subject by authors from Erb down, with the details of a series of observations and experiments of the authors themselves, but so diffusely written as to make an abstract extremely difficult. The paralyses of the ocular muscles of spinal origin are often of a transient nature, and sometimes disappear spontaneously, while in other cases they resist the most prolonged treatment. The combinations of paralysis are sometimes numerous, but the paralysis never affects a co-ordinated system. The spinal paralyses resemble very strongly those due to syphilis, though complete paralysis of the oculomotorius is more commonly of syphilitic origin. The entire paper will repay perusal, in spite of its unsatisfactory arrangement, for it contains an epitome of all that has been done in this department of investigation that is of any real importance.

77. Abadie reports some cases of what he calls *ocular vertigo*, in which the vertigo was the main symptom, accompanied by a severe pain in the back of the neck, an inability to elevate the pupils more than two or three millimetres above the horizontal plane, and a feeling as if the patients were falling backward. The vertigo increased almost to syncope when the patients attempted to look upward, and the pain in the spine and the sense of constriction at the root of the nose increased also. Both Abadie and Charcot thought that the affection could not be attributed to any known cerebral or medullary lesion. It was thought best to give belladonna, beginning with doses of a centigramme, and increase it to the limit of toleration, under which treatment there was a marked amelioration in all the symptoms; and, though the drug had to be discontinued, the patient subsequently recovered.

79. Leber's article upon *the effects of foreign bodies remaining in the eye*, which has been translated by Dr. Seely, is ingenious in its reasoning. Leber undertook, by a series of experiments upon animals, to decide the question how far the consequences of such injuries are due to the foreign body itself, and how far to the septic material frequently carried in with it. He satisfied himself that the simple presence of a clean foreign body—that is, one chemically indifferent and not infected with microbic germs capable of development—produced no inflammation within the eye. Such bodies are pieces of gold wire, spiculæ of glass, fragments of stone, cilia, thorns, etc. The severe suppurative inflammation that ensues immediately upon injuries from metals that are capable of undergoing oxidation has been tacitly ascribed to the action of the foreign body *per se*, without investigating whether the same might not rather be dependent upon a simultaneous infection. In the alterations which the eye undergoes under these circumstances, we must distinguish the purely chemical action of the foreign body from the manifestations which owe their development to the inherent qualities of the eye. Leber regards the changes produced in the vitreous and retina by the class of accidents under consideration as due to the chemical effects produced upon the retina and vitreous by the minute quantities of metallic salts dissolved in the fluids of the eye, and which bring about certain vital processes in its tissue elements. He thinks that, if, after the entrance of a foreign body into the eye, or after injuries of the same in general, acute suppurative inflammation occurs, it must always be referred to infection. Since the simple presence of indifferent foreign bodies in the eye does not excite inflammation, so the action of the microbes can only be regarded as a chemical one. We must imagine that these organisms, through their vital functions, generate certain chemical substances, which act as excitors of inflammation upon the parts concerned.

80. In a paper upon *the extraction of chips of steel or iron from the eye*, Hirschberg asserts that the magnet is both unsuitable and unnecessary for foreign bodies within the superficial layers of the cornea. If the magnet is at hand, the forceps or hook may easily be magnetized, so that the first grasp may be surer, and the foreign body not be pushed away by the instrument. A strong magnet may withdraw iron splinters reaching from the anterior capsule of the lens to the posterior surface of the cornea. The magnet is not indispensable, though very useful, for the removal of iron or steel particles lodged between the posterior surface of the cornea and the posterior capsule of the lens. He reports four cases of chips of iron removed from the vitreous by the magnet through sclerotic sections. He regards this operation as quite safe if the section be made in a meridional direction and be covered with a conjunctival flap.

81. According to Kuhnt, *the senile changes in the human eye* involve the periphery of the choroid and retina, the ciliary body, zonule of Zinn, and, finally, the zone of retina and choroid immediately surrounding the optic nerve. All the various changes in the anterior periphery of the retina lead to atrophy of the nerve elements, varying in extent, and forming the anatomical substratum of the senile limitation of the visual field. A further change in this region of the retina is a coalescence of both granule layers and an atrophy of the rods and cones. Over a corresponding region the choroid is considerably thinned, and shows an obliteration of the capillary layer. In many cases these choroidal changes reached so much farther toward the optic nerve than the corresponding retinal changes, that it is probable that the process starts in the choroid. Another change observed in the retina is a marked hypertrophy of the connective-tissue elements. Still another is the cystoid degeneration, the localization of the cysts depending upon the state of the senile change in the retina, as they never develop in normal tissue. In the ciliary body, the senile changes noticed are a thickening and vascularization of the reticulated substance, the development of sprouting excrescences into the vitreous, and the development of cysts. Reverting to the choroid, in cases where a conus has been observed with the ophthalmoscope, there has been observed in the retinal region corresponding to the choroidal atrophy a complete atrophy of the pigment epithelium, rods and cones, and external granule layer, so that no light-perceptive retinal elements existed.

82. Wadsworth's paper upon *optico-ciliary neurotomy* is based upon an experience of fifteen cases. He considers that the most effective means of checking the bleeding was the thorough division of all attachments of the globe at the posterior pole of the eye; and this is explained by the supposition that until such division is complete the vessels are unable to retract sufficiently to produce proper closure of their cut ends. In every case the operation was done from the inner side, the internal rectus divided, the stump of the opticus brought fairly into the center of the palpebral opening, and the sclera denuded for a wide space about it; in all, the inferior oblique was separated from its insertion, and in some the superior oblique also. The rectus was reunited by suture. Resection, of course, diminishes the chances of reunion of nerves, but makes the operation more serious and increases the risk of hæmorrhage. It has been generally assumed that the slow return of sensibility to the cornea gives assurance that the ciliary nerves have reunited and regenerated. But writers on the nerves of the cornea agree in the assertion that these nerves are derived in part from the conjunctival nerves. Would it be venturing too much to suppose that in some cases, after division of the ciliary nerves, an increased development of the branches derived from the conjunctiva occurs? On the other hand, if the corneal nerves are derived partly from the conjunctiva, it is difficult to understand how the whole cornea should remain anæsthetic for a long time or even permanently, when only a limited portion of the connection between conjunctiva and cornea has been severed by the operation.

84. Krause found the following *changes in the ciliary nerves after optico-ciliary neurotomy*. The nerves in the retro-bulbar tissue were normal, though the nuclei were apparently very abundant. The intra-ocular nerves began at the point of division to be regenerated. Krause does not believe that the central and peripheral ends of the divided nerves unite directly, for with other observers he is inclined to take the view that the immediate peripheral end undergoes degeneration. The regenerated nerve fibers were at first small in size and few in number; but, eventually, they pursued the same course as the original fibers, and in some cases attained the size of the normal ciliary nerves.

85. Wolfe reports a very interesting case of *aneurism of the orbit cured by ligature of the common carotid artery.* The patient was a woman, aged 22, with a large nævus on the right temple and another on the left breast. In February, 1881, she received a blow on the left eye. Three months later she began to suffer pain with severe knocking in the head. When seen there was a general dilatation of the orbital tissues and a slight protrusion of the eyeball. There was no pulsation, but a slight bruit was audible in the orbit; vision was not affected. On October 11th there was considerable protrusion of the eye, the lids were infiltrated, the conjunctiva was injected, and the eyeball pressed downward and outward and markedly limited in its movements. A tumor of half the size of a walnut was seen near the inner canthus, soft and pulsating. The pulsation was visible at some distance, and the noise very audible. When the carotid artery of the same side was compressed, the bruit ceased and the tumor partially disappeared. The ophthalmoscope showed all the signs of choked disc, vision was very much impaired, the outer margin of the cornea was ulcerated, and the pupil sluggish. The operation was done in the usual way under the antiseptic spray. Pulsation in the orbit immediately ceased, the tumor was considerably diminished, and the eyeball retracted within the orbit. The ulceration ot the cornea was arrested. Vision subsequently became normal, the signs of choked disc subsided, and the arteries became of nearly normal caliber. The veins remained dilated and tortuous at the periphery.

88. Risley's paper upon *the comparative value of the mydriatics* is valuable. He draws the following justifiable conclusions: 1st. The sulphates of atropia, duboisia, and hyoscyamia, and the hydrobromate of homatropia, are efficient agents for paralyzing the accommodative function and in the treatment of asthenopic eyes. 2d. In the employment of the last three named, the duration of the treatment is very much shortened. 3d. For the correction of anomalies of refraction in otherwise normal eyes, the homatropine is to be preferred. 4th. If retino-choroidal disturbance is also present, hyoscyamia or duboisia is preferable: (a) to atropia because of the shorter duration of the treatment; (b) to homatropia because of their more persistent control over the ciliary muscle. 5th. Hyoscyamia is preferable to duboisia, since the tendency to systemic poisoning is not so great.

OTOLOGY.

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1. Baratoux's paper upon *the influence of lesions of the sympathetic and trifacial nerves and of the medulla in determining certain diseases of the ear* is an interesting contribution to otological science. He draws the following conclusions from his observations and experiments: 1. Division of the sympathetic causes at the end of a certain time a hyperæmia of the external and middle ear, which sometimes leads to suppuration of the latter. 2. Division of the trifacial causes greater disorders in a shorter time, which proves that this nerve contains more vaso-motor nerves than the sympathetic, at least for the branch supplying the ear. 3. Irritation of the vaso-motor center formed between the nucleus of the descending root of the trifacial and the first dorsal nerve causes an alteration in the ear, the auricular lesion being produced immediately after the lesion of the vaso-motor center; this is characterized by a hæmorrhage into the labyrinth and ecchymosis of the vestibule. 4. All pyretic diseases, which necessarily cause increased activity in the circulation, also produce congestion, suppuration, hæmorrhage in the ear. Embolism of the auricular vessels may also cause in the neighboring zone the same phenomena, which are due here to a compensatory hyperæmia; increase of pressure in the vessels causing dilatation and sometimes rupture. 5. Every lesion of the trifacial before its exit from the skull may cause disturbance of nutrition of the ear, similar to those consequent on its division. 6. It is probable that the disorders supervening in the vaso-motor center cause lesions in the organ of hearing, such as spontaneous hæmatoma, and certain cases of Ménière's disease.

3. Moldenhauer reports a case of *foreign body firmly wedged in the external auditory canal removed by partial detachment of the concha.* He first made a curved incision which extended from the helix backward to the root of the mastoid process, dividing the soft parts; then the concha was dissected up, and the auditory canal opened as near as possible to the drum-head. He then attempted to remove the foreign body, which was a small stone, but found it impossible. The incision was then prolonged close to the insertion of the concha as far as the point of the mastoid process; the auditory canal was also divided here, so that it remained attached for a small space downward and forward. The foreign body was then removed with some difficulty. The hæmorrhage was not great. A drainage tube was introduced to the bottom of the canal, the wound was disinfected, and the concha was stitched by five sutures to the scalp. The wound in the concha healed by first intention. Prolonged suppuration followed from the auditory canal, but at the end of the fourth month the drum-head was regenerated throughout most of its extent, and the small hole downward and forward subsequently healed. A slight narrowing of the canal at the junction of cartilaginous and bony portions was the only sign of the operation.

5. Ayres considers that *exostoses of the external auditory canal* are rare in this country, as he has seen but four cases among a large number of aural patients. In three of them there was a single bony tumor growing from the wall of the canal, and in the fourth case there was complete closure of the canals with an ivory-like bony septum. The last case is given in detail. Ayres first tried the dental engine on the left ear. The first application was not very successful, as the drills did not work properly. There was but little hæmorrhage. Six days later a second operation was done with better drills, without ether, but had to be discontinued on account of the pain. A few days later a third operation was done, which succeeded somewhat better, though it had to be done slowly. The septum was finely perforated, and the opening enlarged

with larger drills. There was some hæmorrhage, which, however, soon ceased. Some suppuration from the external ear followed, which continued for several days. The bony septum was found to be about five millimetres thick and very sensitive. The hearing was slightly improved by the operation.

6. Loewenberg completes his former paper on the occurrence of *coccobacteria in purulent otorrhœa* by considering the pathology and treatment of the disease. If a fluid secreted in the tympanum during an attack of acute otitis media is effused into the auditory canal through a rupture in the drum-head, it becomes at once exposed to all those influences which favor putrid decomposition. These organisms are pushed onward into the tympanum by syringing or by the instillation of lotions. Even the luxuriant multiplication of schizomycetes is sufficient to push the gelatinous envelope farther on toward the tympanic cavity. The structure of the petrous bone, with its numerous fissures and cavities, offers many recesses in which the secretion may stagnate undisturbed and degenerate into a perfect condition of putrefactive decomposition. Inflammation with collection of pus in the mastoid process may occur in the cavities of this bone by simple propagation of the morbid process by continuity and contiguity. This inflammation and formation of pus may extend directly from the periosteum to the bone itself. It is quite probable that the ulcerations upon the mucous membrane of the tympanum in chronic otorrhœa originate from the presence of decomposition fungi. The soluble acid substances which are formed during the development of schizophytes, and the simultaneous putrefactive decomposition of albuminous bodies when plenty of air is present, Loewenberg thinks are capable of dissolving at least the carbonate of lime in the bones. It is a fact that the coccus-gelatine can destroy the periosteum so that the bone is laid bare and its blood supply from the outer surface cut off. The inflammation and suppuration may advance and finally occasion disturbances of the most serious nature in those organs which adjoin the petrous bone, as well as in those at a distance. Thus we observe meningitis, phlebitis with corrosion or formation of thrombus, in the adjacent sinus or internal jugular vein, or ulceration of the internal carotid. We know that innumerable and luxuriant cocci are present in all cases of otitis media purulenta, and it is even more than probable that the morbid process is spread to a distance by the migration of these micro-organisms. They may be transferred from place to place by the agency of the migratory cells, into which they easily penetrate, and they only begin to act deleteriously when they meet with some impediment in the substance of the brain, where mechanical or functional causes lead to their colonization. He thus explains those cerebral abscesses which show no visible connection with an existing affection of the middle ear, as well as meningitis without any connection with the inflammation of the tympanum. As regards the therapeutics of the subject, Loewenberg lays great stress in fresh cases on the aseptic treatment, to prevent the immigration of schizophytes and to stop the putrid decomposition of the secretion as well as the suppuration. When perforation of the drum-head appears unavoidable, paracentesis should be at once performed with a carbolized needle, and then the canal should be filled with finely-pulverized boracic acid. In the treatment of chronic cases he employs Bezold's method, which owes its action to the gradual absorption of the mass of boracic acid in the canal by the fluids constantly secreted. Loewenberg thinks that the only sure way of cleansing the canal and cavity of the drum is by frequent syringing with a large amount of fluid and a forcible stream. A superabundance of moisture exerts a noxious influence upon the growth of schizophytes, while a slight amount of moisture increases their growth. Excessive osmotic saturation of the tissues may be avoided by using anti-osmotic fluids, such as a concentrated solution of sodium chloride. In cases where the secretions have a putrescent odor, it is best to syringe abundantly and repeatedly with water which has been rendered antiseptic by boracic acid or alcohol. If the opening in the drum-membrane is small, it is necessary to enlarge it by a sufficiently extensive incision in order that the diseased cavity may be fairly reached by the fluids used in cleansing. At the same time air must be freely forced into the tube and tympanic cavity, for stagnation in air leads to putrid decomposition just the same as stagnation in water. The in-

sufflation of chloroform vapor also acts as an antiseptic agent. When it comes to treating the diseased surface, Loewenberg adds to the simple boracic acid alcohol, which increases the antiseptic action of the acid, and exerts a beneficial astringent action upon the diseased surfaces of the affected regions. To a saturated solution of boracic acid in absolute alcohol he adds ten to twenty per cent. more of acid. Before using, he shakes the mixture well in order to distribute the superfluous powder evenly, and then he warms a part of it and pours it into the ear. In this way the excess of acid is carried along with the fluid, reaches all the surfaces, and, by inclining the head toward the healthy side, it sinks by its own weight into the deepest cavities. He thinks it important to fill the canal completely, since the action on the schizomycetes and the coagulating effect upon albuminous substances manifest themselves all the more forcibly the greater the amount of active substance which comes into contact with them. Moreover, as a prolonged contact is just as important as this point, he lets the lotion remain in the ear as long as possible.

7. Burnett describes a case of *otomyces purpureus in the human ear.* The mycelium of the fungus was delicate and septate. The fructiferous hyphens were large and of a double contour. Instead of conidia with sterigmata there were asci filled with spores. The walls of the asci had a double contour, and were of almost twice the size of the conidia of the aspergilli. The spores were larger than those of the aspergilli, some being round without contents, while others were of a deep red color, and others still of a pale yellow color. The free spores were larger than those in the asci, and the nucleus, when single, usually filled more than half of the interior of the spore. The spore was generally round, though sometimes with a pointed elongation at one end. In some of the free spores there was observed a division of the central nucleus into two, or three, or more parts. The coloring matter was not confined to the sporangia, but was diffused throughout the mass.

8. Bezold reports a number of cases to illustrate his paper upon *disintegration of the membrana tympani.* In this paper he discusses the effect of water upon the drum-head, and is of the opinion that the etiological dependence of acute myringitis upon the presence of cold water in the ear, especially after cold bathing, can not be denied. But even in these cases we should not conclude that the cold is the cause of the inflammatory action, whether it be the temperature of the water itself, or the lowering of the temperature in the canal by evaporation of the water. In the auditory canal there are the most favorable conditions for the development of the lower organisms. The assumption that the rapid development of schizomycetes in consequence of the presence of water is the exciting cause of the inflammation of the canal and tympanic membrane is as likely to be correct as attributing the myringitis in these cases to the effect of cold. Where a perforation of the drum-head opens the way into the middle ear, we see purulent inflammation of the latter much more often result from the entrance of water than myringitis with the drum-head intact from the same cause. The injurious effect of simple water, when it enters the middle ear through the auditory canal, is most plainly observed in cases of traumatic perforation—that is, with normal auditory canal and healthy drum cavity.

11. In a paper upon *the topography of the region of the vestibule* in man, Steinbrügge draws the following conclusions as to operative interference as a means of relief in certain cases of disease. In operating in the region of the oval window, the surgeon must avoid the upper margin, and especially the external or lateral half of the latter, on account of the proximity of the macula of the utriculus. On the other hand, at the height (on the plane) of the lower margin there is a space filled only with perilymph, which would admit of a puncture of the ligamentum orbiculare (and best in the internal or median half of the lower margin), without danger of injuring the utriculus or vestibular nerves. The sacculus also lies tolerably well protected in the hemispherical recess, and would not be endangered by a puncture within the region just mentioned.

12. Ladreit de Lacharrière considers that *labyrinthine otitis* occurs more frequently than has generally been supposed. It may be either primitive or secondary. Many deaf-mutes, with an early history of convulsions and severe febrile attacks, have owed their

hopeless state to an early labyrinthine otitis. It may be a complication of meningitis, the inflammatory process having reached the labyrinth by following the sheath of the acoustic nerve. It may be acute or chronic, the latter having all the symptoms of the so-called Ménière's disease. The pathological anatomy of the disease is as yet almost unknown. A diagnosis of disease of the labyrinth should never be made without an exact examination of the ear. It may exist simultaneously with other diseases of the neighboring organs. The prognosis is always grave. When it complicates an acute disease, it menaces the life of the patient. In the chronic form of the disease, the loss of hearing may not be complete, though it is usually present to a marked degree. Lacharrière recommends for the acute form of the disease antiphlogistics, revulsives upon the mastoid and nape of the neck, mercurial preparations externally and internally, and large doses of potassium iodide. He considers that quinine sulphate in large doses for a length of time gives good results in grave cases of the chronic form; and advises also the trial of large doses of arseniate of sodium, and also the valerianate of ammonium and potassium bromide.

13. Hessler's paper on *erosion of the internal carotid artery from caries of the petrous bone* is very interesting. He reports thirteen cases in which the autopsy demonstrated a fatal hæmorrhage from the artery. In a second series of six cases the autopsy did not positively prove the diagnosticated hæmorrhage from the carotid, but it was extremely probable. In a third series of three cases the autopsy showed complete disappearance of the bony carotid canal, although during life there had been no hæmorrhage from the internal carotid artery, which was found lying free and surrounded with pus. All the cases are described in detail, and the pathological condition of the parts and their dependence upon purulent disease and caries in the petrous portion of the temporal bone are very carefully given. The paper is a valuable contribution to our clinical and pathological knowledge of caries of the petrous bone.

14. Pollak reports an interesting case of *necrosis and elimination of almost the entire osseous part of the organ of hearing*, with recovery, in a child aged five years. When he first saw the patient there was a large external opening in the mastoid, through which projected a piece of necrosed bone. This was seized with a pair of forceps, and, after gentle traction, broke off. It proved to be a part of a large sequestrum, and contained part of the mastoid process and cells. The remaining fragment was removed with ease, and proved to be the entire petrous portion of the temporal bone. Digital exploration detected some more spiculæ, which, on being withdrawn, proved to be the osseous portion of the external auditory canal. Bleeding was profuse from the mastoid opening and auditory canal, but was soon arrested. Three long polypi were found in the canal and twisted off. Improvement progressed rapidly from the beginning. The tumefaction of the left side of the face subsided rapidly, but the paralysis remained. The opening in the mastoid closed within a week, and the auricle resumed its normal position.

QUARTERLY REPORT ON PSYCHOLOGICAL MEDICINE.

No. V.

By NORTON FOLSOM, M. D.,
BOSTON.

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28. Moore, W. J.—The opium question. "Indian Med. Gaz.," Oct., 1881.
29. Crothers, T. D.—Inebriate criminals. "Alienist and Neurol.," Jan., 1882.
30. Liebmann, G.—Suicide. "Trans. of the Med. and Chir. Faculty of the State of Maryland," 1881.
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1, 2, 3. Dr. Mills gave a successful and interesting exhibition of the phenomena of hypnotism before the Philadelphia County Medical Society on the 12th of October last, which stands in agreeable contrast with the deplorable fiasco through which Dr. G. M. Beard has lately obtained such crushing reproof from English authorities. Dr. Mills's experiments were conducted upon six individuals with varying degrees of success, and unsuccessfully in several other cases. In two cases of hysteria major, and two of monoplegia, it is merely stated that different depths of the hypnotic state were produced, and in two of them the disappearance of consciousness was only partial. The other two cases were reported in full, and most of the phenomena referred to were exhibited to the Society. The first patient was a single woman of twenty-one, subject, since the age of four, to epileptiform seizures, which began with a series of convulsions lasting several hours, which left her partially paralyzed on the right side. She had attacks several times weekly till the catamenia appeared, at about fifteen, and since then the attacks had been less frequent and severe. The right arm was smaller than the left, and on the right side sensibility was diminished. The patient was capricious, excitable, and somewhat hysterical. She was hypnotized by gazing at a glass button placed above and near the eyes, and "passes" were sometimes used after her eyes closed. As she passed into the hypnotic sleep the face flushed, the breathing and pulse were accelerated, and the temperature rose one to two degrees. Her head inclined to one side, the left hand and arm trembled. She now could not open her eyes, and, on trying to fully open the mouth, increased flow of saliva was noticed. The left arm assumed the position of paralysis, but would remain in any position it was placed in, after stroking it for a time, the muscles becoming somewhat rigid. She would make various movements and follow the experimenter when told to do so, but slowly and with some tendency to fall to one side. On pinching and thrusting needles into her hands and arms, she gave no signs of pain, though she once or twice seemed conscious that she was touched. She appeared entirely unconscious of her ordinary surroundings, but complied promptly with the directions of the operator. She was aroused readily by a sharp command, and at the same time blowing on the face or tapping the face or limbs smartly. On waking she was a little dazed at first, but in a few minutes was herself again. She did not remember what had taken place.

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The second patient was a girl of seventeen, who had had hysterical rhythmical chorea for four years, which stopped only during sleep. Her forearms, thighs, and legs were formerly held partly flexed by tonic spasm or contracture, but this had been relieved except at the knees, and the movements, at first general, were latterly confined to the lower limbs. Anæsthesia was marked in certain regions. She had the hysterical face and manner. She was hypnotized by gazing at the button, or some other object, sometimes followed by "passes." The chief phenomena observed were, diminution or loss of consciousness, increase in pulse and respiration, highly marked analgesia, automatism at command, increase of tremor and contracture, and neuro-muscular over-excitability. Dr. Mills's paper concludes with citing the views of Heidenhain and others as to these interesting phenomena, and briefly alludes to the possible therapeutic value of hypnotism in anæsthesia, the treatment of neuralgia, spasm, tremor, and palsy. He thinks the study of the subject may also be of value in differential diagnosis, by throwing new light on nervous phenomena. [There is nothing in the paper of Dr. Mills to excite a doubt of the good faith of his patients or any one concerned. Indeed, the phenomena, which are not all minutely described, are not so remarkable as have occurred in other experimenters' hands of unimpeachable good faith and high scientific reputation.

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It is, however, difficult to characterize the transactions described in the report of Dr. Hammond's Clinic of Diseases of the Mind and Nervous System, and it seems incredible that such an exhibition could have been conducted in sober earnest and good faith. Four young men, with "nothing remarkable about their personal appearance," having been made to look at a piece of glass, proceeded to a variety of extraordinary pranks at the command of the operator. One was told that a black bottle was a lady, and made love to it. He ate a piece of lemon under the name of a strawberry, and did not shrink, and ate alum for caramel with "apparent pleasure." Being told that a sulphur match was good cologne, he said: "It smells nice, but is strong, though." He readily attacked the spectators when told that they impugned his veracity; another subject was knocked down by presenting a magnet at him, after due warning; was made to treat a book like a pet bird, etc. One of the subjects was made to address the company as a colored preacher, and to act tragedy. All sorts of fantastic things were said and done in various characters, assumed at the command of the lecturer, and all sorts of sensations were experienced when imaginary cause was given for them. The subjects became drunk, sick, angry, and terrified at the word of command. The only test of good faith instituted was running a lancet into their hands. They did not wince; and, on being restored to consciousness by a touch over the eyelids, they declared their complete unconsciousness of the transactions!] Professor Hammond concluded the exercises with a statement that subjects could be made to commit crimes unconsciously, and, of course, irresponsibly, when hypnotized. To illustrate this, one of the young men was again entranced, and was given a roll of paper. He was told that it was a dagger, and that he must kill a man standing near He hesitated, then sprang on him like a tiger, and thrust the supposed dagger at him again and again. After being dragged off he was made to commit arson with equal readiness. [It would seem as if these latter hypnotic phenomena would make an excellent new plea in defense in criminal cases, if properly worked up by an expert of the right sort and re-enforced by ophthalmoscopic examination! These farcical procedures would be utterly unimportant, or simply amusing, but, when coupled with a name of such prominence as that of Dr. Hammond, they tend to bring reproach upon science generally, and especially upon American scientists. It is not to be expected that scientific men abroad will discriminate much among teachers and writers here. If one is found engaged in such proceedings and promulgating such doctrines, the reputation of all will suffer. ===== It may be esteemed fortunate that Dr. Beard's late attempt in England met with exposure and rebuke on the spot, and the gentlemen who undertook so promptly the unpleasant duty deserve the thanks of all earnest students. Dr. Beard's conduct at the time, and his silence toward the pertinent questions in Dr. Browne's published letter, at first excited painful doubts as to his relations with his patient's imposture, but the evident self-complacency with which he now writes concerning "Current Delusions relating to Hypnotism" will go far toward deciding the question as to his sincerity, which was necessarily raised by the events alluded to, in his favor, whatever it may do for his scientific reputation. Dr. Browne's questions, and the other papers which have appeared, which to the rest of the world seemed to necessarily show Dr. Beard forth as either dupe or deceiver, were to him "amusing"; and his present attitude would seem to be that of condescending pity and gentle sorrow for all who disagree with him. The impression is an unavoidable one that he is actually unaware of the deplorable figure he has presented.]

19. Dr. Spitzka thinks that all the facts in the history of various cases of *general paresis* can be harmonized by assuming the essential and primitive anomaly in the brain, in this disease, to be a vaso-motor disturbance; and that this assumption is in strict accordance with observations made on the brain after death. The organic basis of the vaso-motor difficulty, he states, consists in a probably impalpable morbid state of the encephalic vaso-motor center. Such a state might readily be induced by the repeated hyperæmias of alcoholism, rheumatism, syphilis, typhus fever, insolation, concussion by violence, etc.

21. Dr. Boyd finds that although the average *weight of the body in the insane* is greater than in the sane, the heart is as much as one ounce lighter in males, and one and a quarter ounce in females. The difference is greater in the two earliest decennial periods, when it amounts to two ounces in each sex. The average weight of the liver at the four earliest decennial periods is from two to thirteen ounces less in insane males, and from four to nine ounces in insane females. After sixty years the weight of the liver diminishes gradually, and the difference becomes less in the two classes. On the average of the whole, the liver is four ounces less in insane males, and three and one third ounces less in females. The spleen is about half an ounce less in the insane. The kidney is about an ounce less. The cerebellum he finds to be of the same weight in males, and nearly an ounce lighter in insane females.

26. Dr. Wilbur, thinking that an impression prevails among the medical profession in the United States that in the British asylums for the insane the necessity for restraint by mechanical appliances, such as camisoles, muffs, straps, crib-bedsteads, etc., is obviated by the free use of stupefying drugs, has been studying the statistics, and looking up facts. He finds that plenty of drugs are used in the United States, but that in neither country is the term "*chemical restraint*" justified, for the use of sedatives and narcotics which is thus called is not the substitute or alternative for mechanical restraint. On the contrary, the general rule seems to be: the more mechanical restraint, the more chemical. The British superintendents whom he consulted repudiated the idea of the substitution. Incidentally, the result of his inquiry goes to show that, although there has been a great diminution in the use of restraining apparatus in the United States during the last four or five years, it is still used in some asylums quite extensively, compared with English practice.

28. In a very interesting article, the statements of which are supported by very numerous references, Deputy Surgeon-General Moore presents "the other side" of the question as to *the effect on health of the continued use of opium.*

It would appear that the evils of this habit have been vastly exaggerated; and that while it is true that the extremely excessive use of the drug, whether by smoking or otherwise, does result in mental, moral, and corporeal deterioration, on the other hand, instances of its moderate use for life are not rare, in which none of the deplorable symptoms described by "anti-opiumists" are to be observed, and where, in fact, the effects appear to be positively beneficial as a prophylactic against prevailing diseases. He begins by controverting the statement, almost universally accepted, that the habit of opium smoking can not be relinquished. On the contrary, it is quite possible, though perhaps the majority of those who acquire the habit continue it through life. The difficulty of abandoning it is considerable, but not, he claims, greater than in the case of alcoholic liquors. He considers the ill effects upon the individual and upon society to be less than in the case of alcohol, inasmuch as opium drunkenness, though having some effects in common with that from liquor, does not lead to quarreling and crimes of violence. The proportion of opium eaters or smokers who use the drug with moderation is probably much greater in countries where it is in common use than that of moderate consumers among those who drink alcoholic liquors. In China there seems to be good reason for ascribing immunity from diseases of the bronchial tubes or lungs to the use of opium; it is a fact that many of the Protestant Christians who are debarred from its use die of consumption; and large numbers of the smokers of opium begin its use to check the spitting of blood. As a preventive of ague in malarious districts, both in China, in India, and in Lincolnshire, England, its efficacy is well attested. Vast numbers of the Chinese are poorly fed, and like tea and tobacco; opium enables them to support life through its power of arresting waste of tissue. Dr. Vincent Richards, who instituted a statistical inquiry at Balasore in Orissa, where the habit of using opium has increased since the famine of 1866, arrived at the following conclusions: That it is taken habitually by 8 or 10 per cent. of the adult population in moderation; that is, from 2 to 16 grains per diem, the average allowance for a man being 7 grains, and for a woman 5 grains. Its use is much more common in unwholesome than in wholesome localities, even if adjacent. It is sometimes taken in doses of 30 grains and upward, without any very serious ill effects. In moderation, it is positively beneficial where fever, elephantiasis, rheumatism, etc., are present, and where food is scarce. The effects of even its most excessive use are harmless compared with the excessive use of alcohol.

30. Dr. Liebmann arrives at the following conclusions from the analysis of various statistics, including some original observations: *Suicide* can be traced in a majority of cases to insanity as a cause, while in a minority insanity can be positively excluded. It is on the increase in a regular proportion. [But the table given only shows actual increase in the number in France from 1886 to 1852, and the proportion to the population is not given.] Suicide occurs at all ages, and more frequently among males than females. It is favored by a moist and changeable climate, and by the warm season of the year. It is more frequent in prosperous and highly civilized than in barbarous races.

QUARTERLY REPORT ON ANATOMY AND PHYSIOLOGY.*

No. V.

By AMBROSE L. RANNEY, M. D.,

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* I am indebted to Dr. Alexander Duane for assistance in preparing this report.—A. L. R.

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30. Langley, J. N.—On the histology and physiology of the pepsin-forming glands. "Proc. of the Roy. Soc.," xxxii, 212.
31. Roberts, W.—On the estimation of the amylolytic and proteolytic activity of pancreatic extracts. *Ibid*, xxxii, 213.
32. Maier, R.—Die Ganglien in den harnabführenden Wegen des Menschen und einiger Thiere. "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," lxxxv, 1, 1881.

6. Mendelsohnn finds that *the lifting-height of a contracting muscle*—that is, the height to which it will lift a given weight—is diminished by an increase in the weight to be lifted, by the supervention of fatigue, and by an elevation of temperature above 30° C. [86° F.]. The lifting-height of a muscle set into activity by an electrical current increases with the strength of the current up to a certain maximum point, when it remains constant for a current of any strength. The elastic extensibility of a muscle is diminished by increasing the load of the muscle, and is increased by the effect of fatigue, arrest of circulation through the muscle, or section of the supplying nerve. The supplementary extensibility—that is, the property which a muscle possesses of undergoing gradual extension subsequent to the immediate extension produced by loading it with a given weight—increases when there is a slight addition to the traction-force, and diminishes when there is a great addition to the traction-force.

7. Dobson, from deductions based upon a study of comparative anatomy, regards *the tendinous intersection of the digastric muscle* as the remains of a tendinous raphé connecting the muscles of the opposite sides, and acting as a fixed point of origin for the anterior bellies of the two muscles. The extensive development of the tendinous portion in man and some of the lower animals is ascribed to the tension produced upon this portion by its connection with the hyoid bone, and is more particularly dependent upon the assumption of an upright attitude of the head while swallowing food, a position which necessitates greater strain upon the central portion of the digastric than that which is assumed by most animals in eating.

13. Wedl describes *arterial glomeruli in the dental periosteum* like those found in the kidney. He thinks that their existence is to be attributed to the considerable stress, both longitudinal and lateral, to which the teeth are exposed in the act of mastication; and he believes that changes in their structure (cystic degeneration of the connective-tissue capsule, obliteration of the vessels with atrophy) may explain some of the pathological processes occurring in the dental periosteum, and also the physiological process of involution which the tooth undergoes in old age.

20. In the cat (although not in man) *ganglion cells among the fibers of the anterior spinal-nerve roots* are found, and especially in that portion of the anterior root which is nearest to the ganglion upon the posterior root. The method of connection between these ganglion cells and the nerve-fibers has not yet been made out.

27. Dubar and Remy, investigating *peritoneal absorption*, found, from experiments upon rabbits, that albuminous solutions placed in the peritoneal cavity were rapidly absorbed without inducing any lesion of the serous surface. Absorption takes place by the lymphatics, especially those of the diaphragm, and by the blood-vessels, and elimination begins to take place by the urine within half an hour. Absorption is very rapid when the inserted fluid resembles in its constitution that of an ascitic effusion.

28. Morat, in experimenting upon the effects of pilocarpine and atropine upon *the movements of the stomach and small intestine*, found that the former drug excited vigorous contractions of these viscera, while the latter not only checked contraction, but prevented its development even when the pneumogastric was stimulated.

30. Langley has observed the changes occurring in the epithelium of *the pepsin-forming glands* during digestion—changes which appear to be quite analogous to those occurring in the pancreas during its period of secretory activity. In the cells of the gastric glands are found granules, which diminish in proportion to the activity of secretion, which are proportional in amount to the quantity of pepsin-forming material (zymogen) resident in the cells, and which, during the process of secretion, are gradually moved from the periphery of the cell to the portion in immediate contact with the secretory surface. The processes which are assumed to take place in a secreting cell during digestion are an increase in the protoplasm, a conversion of the protoplasm into zymogen, and the transformation of the zymogen into the various secretory products.

32. Maier describes a double layer of *nerve fibers in the urinary tract*, from the beginning of the ureter down—one set occupying the mucous coat, the other the muscular coat. These layers are intimately connected by anastomotic branches. Both layers inclose ganglionic nerve cells, variously situated with regard to the nerve fibers, and in some cases connected directly with the latter by protoplasmic processes. The ganglionic cells may also present "false" processes connecting them merely with the connective-tissue envelope of the nerve fibers, and some cells are without any distinguishable processes (apolar cells).

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Miscellany.

The Action of Mercury in Syphilis.—Bronson ("Med. Record," Nov. 5, 1881) makes an attempt to extract from the various heterogeneous sources comprising the study of mercury in its chemical, physiological, and therapeutic relations, a consistent theory of mercurial action in syphilis. The first inquiry is addressed to the question of "the form in which mercurials exist after their introduction into the body. This involves a consideration of facts pertaining to the absorption and elimination of the drug, as well as of such as relate to the discovery of mercury in the tissues after death. The conclusions arrived at are that mercury, whether given in its metallic state or in any of its chemical combinations, enters the organism in a soluble form (probably as a double chloride salt); that, once arrived there, it tends to form a very intimate union with the albuminoid elements of the body; that in this albuminoid combination the mercury does not exist in the form of independent globules, but rather as atomic elements of a definite chemical union. The assimilation becomes so complete, in other words, that in this foreign substance the body receives what may be termed an adventitious proximate principle. The writer next turns to the therapeutic action of mercury in syphilis. Different hypotheses are discussed, and the objections to them are stated. Considerable space is devoted to the theory of the tonic action of mercury, the writer maintaining that it can not in any true sense be called a tonic, but that its alleged effect in improving the bodily weight and the number of the red blood corpuscles is the result of retarded disassimilation rather than of improved nutrition. It is suggested, in conclusion, that it may be this retardation of vital movements caused by the intrusion of the heterogeneous metallic element into the plasma of the body which is the source of the mercurial influence upon the morbid processes of syphilis. The active cell proliferation characteristic of these processes is held in check by the presence of this foreign element, which, in a sense, may be said to serve as a ballast to the tissues, causing them to respond less readily to the irritating principle of syphilis. Furthermore, it is urged that such radical interference with the vital dynamics can not be pursued indefinitely without resulting in permanent prejudice to the economy. [Only *a priori* reasoning is employed in this connection, the clinical aspects of the question being barely touched upon.]

The Effect of Coronary Occlusion on the Heart.—Cohnheim and v. Schulthess-Rechberg ("Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," lxxxv, 3, 1881), as the result of experiments upon animals, find that occlusion of a large branch of the coronary arteries has at first no effect upon the movements of the heart or the general blood-pressure. The duration of this period of immunity varies in proportion to the amount of heart-tissue thus deprived of its blood-supply. Then follows a period in which the pulse becomes irregular and retarded, but the blood-pressure is maintained at the same height as before. This is succeeded by a sudden stoppage of both ventricles simultaneously in diastole, and by a rapid fall of the blood-pressure. The auricles still continue to beat, and after the lapse of a short interval the ventricular muscles exhibit active peristaltic movements, which, however, have no influence in raising the blood-pressure. Finally all movement ceases. The authors account for this curious succession of symptoms by supposing that, normally, under the influence of the cardiac contractions a noxious product is set free, derived from a metamorphosis of the substance of the heart itself; but that, as this product is carried away directly by the circulation, it has, under normal circumstances, no power to exert a pernicious influence. When, however, in a certain portion of the cardiac substance an arrest of the circulation has been produced, this product may accumulate in the region involved until it reaches a quantity sufficient to cause at first irregularity, and then total stoppage, of the function of this organ.

FUNCTIONAL PULMONARY MURMUR.—A systolic pulmonary murmur may be due, says Nixon ("Dublin Jour. of Med. Sci.," Sept., 1881), to anæmia, to pressure upon the artery, to altered position of the heart, to incipient phthisis, and in some cases to the pressure of the stethoscope itself. In other cases it is developed by any cause producing non-expansion of the left lung, by which means the pressure exerted upon the artery is diminished. In addition, Nixon observed cases which could not be referred to any of these causes, and which, being associated with every variety of morbid condition from diarrhœa to paraplegia, could be held to have no specific pathological significance. This murmur is heard most clearly in the second left intercostal interspace, is not diffused in any direction, and is most readily appreciated when the patient is in the recumbent posture. It usually disappears during a forced inspiration, and gradually returns. It is to be particularly diagnosticated from the friction-murmur of a localized pericarditis; also from a murmur in the left subclavian artery, and from that peculiar form of mitral murmur which is most distinct at the base of the heart.

SLOW AND IRREGULAR PULSE.—The diseases in which a slow pulse is apt to occur, according to McBride ("Med. Record," Nov. 12, 1881), are certain fevers, especially typhus, and the apyretic stage of relapsing fever; cardiac and pulmonary affections, particularly peri- and endocarditis, congenital lesions of the heart, aortic stenosis and fatty heart, pleurisy with effusion, croupous pneumonia after the crisis, gangrene of the lung in its early stages, and the early stages of carbonic-acid poisoning; in certain nervous disorders, as cerebral compression from hæmorrhage or other causes, the second stage of meningitis, fracture of the cervical vertebræ, and various lesions producing irritation of the cord; in the invasion stage of erysipelas and diphtheria; in scurvy, gout, jaundice, lead colic, ergotism, and some cases of uræmia. Intermittence of the pulse occurs sometimes in health, and again may be observed in compression of the brain, however caused, as well as in connection with dilatation and degeneration of the heart. Irregularity of the pulse may be due to purely nervous causes, as when excited by reflex irritation and when occurring in hysteria and hypochondriasis; or it may be due to degeneration of the heart and to mitral insufficiency without degeneration; and it also occurs in the secondary stages of syphilis.

PULSATING LIVER. — Drummond ("Dublin Jour. of Med. Sci.," Oct., Nov., 1881) assigns to a pulsation of the liver an importance in the diagnosis of tricuspid regurgitation superior to that of jugular pulsation or of a cardiac murmur, and ascribes the phenomenon to the regurgitation of blood through the inferior cava and into the branches of the hepatic veins. The direct impulse of the heart against the liver has also some share in the production of the pulsation.

A NEW INTESTINAL PARASITE.—Two years ago Grassi discovered in various species of mice an intestinal parasite which he called the dimorphus muris; but, having since found it in cats and in man, he prefers to drop the old title as no longer appropriate, and he now names it ("Gazz. degli Ospit.," July 15–30–Aug. 15, 1881) the megastoma entericum. This parasite is shaped like a pear with an elliptical base, is covered with an envelope, apparently chitinous in character, and is provided with six cilia at its basal end (head), and two similar projections at its apex (tail). Its distinguishing feature is its mouth, which is situated upon one lateral surface near the basal end. By this mouth it is seen to attach itself to the epithelial cells of the intestinal canal. The megastoma is of about the same size as the ordinary red blood-corpuscle, being from 5 to 10 μ in length, and 4 to 6 μ in breadth. The author considers it doubtful whether any pathological significance is to be attributed to the presence of this parasite.

Alcoholic Ascites. — Bouveret ("Lyon Méd.," Dec. 11, 18, 1881) has met with two cases in which ascites existed in connection with a marked alcoholic history, and in which, accordingly, hepatic cirrhosis was at first diagnosticated, but in which subsequently the character of the physical signs and the permanence of the cure seemed to render another diagnosis necessary. He therefore considers the ascites to have been due either to a sub-acute congestive hepatitis, which some authors have described and which is quite curable, or, more probably, to a primary chronic peritonitis, the result itself of irritation excited by the abuse of alcohol. In either case, the treatment, in addition to early operative procedure, is limited to the enforcement of an exclusive milk-diet, and the administration of large doses of iodide of potassium.

Army Intelligence.—*Official List of Changes of Stations and of Duties of Officers of the Medical Department, United States Army, from February 14, 1882, to March 13, 1882.*—Alexander, R. H., Major and Surgeon, now awaiting orders, to report in person to the commanding general, Department of the Missouri, for assignment to duty. S. O. 52, A. G. O., March 6, 1882. ══════ Brown, H. E., Major and Surgeon, now awaiting orders, to report in person to the commanding general, Department of the South, for assignment to duty. S. O. 52, C. S., A. G. O. ══════ Gardner, William H., Captain and Assistant Surgeon. Assigned to duty as Post Surgeon at Fort Concho, Texas. S. O. 13, Department of Texas, February 6, 1882. ══════ Pope, Benjamin F., Captain and Assistant Surgeon. Relieved from duty in Department of the Columbia, and to report in person to the Surgeon-General, for duty in his office. S. O. 42, A. G. O., February 21, 1882. ══════ Dickson, J. M., Captain and Assistant Surgeon, now awaiting orders, to report in person to the commanding general, Department of the East, for assignment to duty. S. O. 52, C. S., A. G. O. ══════ Lauderdale, J. V., Captain and Assistant Surgeon. Relieved from duty in the Department of the South, and to report in person to the commanding general, Department of Dakota, for assignment to duty. S. O. 52, C. S., A. G. O. ══════ Moffatt, Peter, Captain and Assistant Surgeon. Relieved from duty at Camp Spokane, Wyoming Territory, to proceed to Fort Cœur d'Alene, Idaho, and relieve Assistant Surgeon Spencer from duty at that post. S. O. 20, Department of the Columbia, February 11, 1882. ══════ Finley, J. A., Captain and Assistant Surgeon. At expiration of his present leave of absence to be relieved from duty in the Department of the East, and to report in person to the commanding general, Department of Texas, for assignment to duty. S. O. 52, C. S., A. G. O. ══════ Comegys, E. T., Captain and Assistant Surgeon. Assigned to duty at Fort Stanton, New Mexico, relieving Assistant Surgeon Newton. S. O. 40, Department of the Missouri, February 21, 1882. ══════ Spencer, William G., Captain and Assistant Surgeon. Relieved from duty in Department of the Columbia, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 46, A. G. O., February 27, 1882. ══════ Gardner, Edwin F., Captain and Assistant Surgeon. To report in person to the President of the Medical Examining Board in session in New York City, for examination for promotion, and, on its conclusion, to report by letter to the Surgeon-General. S. O. 52, C. S., A. G. O. ══════ Robinson, S. Q., Captain and Assistant Surgeon. To report in person to the President of the Medical Examining Board in session in New York City, for examination for promotion, and, on its conclusion, to report by letter to the Surgeon-General. S. O. 52, C. S., A. G. O. ══════ Newton, R. C., First Lieutenant and Assistant Surgeon. When relieved by Assistant Surgeon Comegys, to proceed to Fort Cummings, New Mexico, and report to the commanding officer for duty. S. O. 40, C. S., Department of the Missouri. ══════ Raymond, H. I., First Lieutenant and Assistant Surgeon. Relieved from duty at the Presidio of San Francisco, and assigned to duty at Alcatraz Island, California. S. O. 28, Military Division of the Pacific and Department of California, February 15, 1882. ══════ Frantz, John H., Major and Surgeon. Died at Baltimore, Maryland, on March 2, 1882.

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Original Communications.

LANDMARKS IN THE OPERATION OF LAPARO-ELYTROTOMY.*

By WILLIAM M. POLK, M. D.,
PROFESSOR OF OBSTETRICS AND GYNÆCOLOGY IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF THE CITY OF NEW YORK.

In presenting this specimen I do so for the purpose of illustrating some points of interest connected with the operation of laparo-elytrotomy. It was taken about ten days ago from the body of a murdered woman who was in the seventh month of pregnancy, and on whom, after her death, I had the opportunity of performing this operation before the class at the University. The specimen shows the relations of the pelvic viscera during the later months of pregnancy, and the steps taken in the operation as I performed it.

The special dangers attending laparo-elytrotomy are four in number: First, opening into the peritoneal cavity; second, hæmorrhage; third, wounding the bladder; fourth, wounding the ureter. In an excellent paper on this operation, by Dr. Garrigues, all these points were exhaustively considered and made clear, excepting the last. The first danger, that of opening into the peritonæum, may be avoided by making the incision in such a manner as to reach the subperitoneal space below the reflection of the peritonæum, and then with gentleness pushing this membrane up from its attachments in the iliac fossa at the brim of the pelvis, and in the anterior pelvic fossa as far as the cervical wall. The danger from hæmorrhage may be avoided by no longer using the cutting instrument after penetrating the fascia transversalis, using from that time on a tearing force and the actual cautery. The position of the bladder may be determined by inserting a sound, thereby enabling the operator to avoid injuring this viscus.

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* Remarks made before the New York Obstetrical Society, January 3, 1882, with additions.

The points with reference to the ureter are very fully considered by Dr. Garrigues in his admirable article upon this operation,* but, unfortunately, his experiments and observations were made exclusively upon non-pregnant subjects. He advises that the incision be made low down, so as to enter the vaginal canal below the ureter. I have now done this operation twice on the dead subject, the first time a year ago. In the first operation, in order to reach the vagina at the line suggested by Dr. Garrigues, after crossing the pelvic brim I found it necessary to hug the pelvic wall till a point below the level of the ureter was reached; then, going inward, the vagina was easily found. All loose tissues being now pushed upward, the wooden plug in the vagina was made to carry the wall outward and upward along the pelvic wall till it reached the brim. An opening was then made, and the child was extracted. Examining the ureter afterward, it was found greatly stretched and slightly lacerated. This was readily accounted for when it was seen how greatly it had been displaced from its normal position. This position, describing a curve from behind forward and from above downward, reaches a point about an inch below the pelvic brim, opposite the line of incision into the vagina, but, in the passage of the child's head and shoulders through the opening, the ureter, being above, was so far displaced that it described a curve from behind forward, but also from below upward, reaching far enough above the brim to permit the passage of the child's head between it and the brim. This great displacement, as has been said, proved disastrous. This circumstance suggested to me the advisability of approaching the vagina more directly, so as to reach it above the ureter, hoping to avoid injuring this tube, not only in the early steps of the operation, but also in the later ones of delivery, and thus remove one of the greatest objections to this operation—an objection which has in great part stood in the way of its adoption as a substitute for the Cæsarean section, and possibly for certain cases of embryotomy.

Before proceeding with the operation upon the body of the murdered woman, I cut through the linea alba just above the pubes, down upon the bladder, entered this viscus, and inserted a probe into the left ureter, thus definitely marking out its locality. The incision for laparo-elytrotomy was then made, but, on reaching the pelvic brim, instead of keeping along the pelvic wall, I hugged the lower surface of the peritonæum, passing directly to the cervical portion of the uterus, then down along this to the vagina, which was clearly defined by the wooden plug within. By means of this plug the vaginal wall was now pushed along the opening so as to rest against the pelvic brim. All tissue easily displaced was pushed down the vaginal wall below the brim, and an incision was made into the canal about three quarters of an inch below the cervico-vaginal junction, directly through the lateral wall. The cut was made parallel to the pelvic brim. The opening was next enlarged in the direction of the incision till sufficient space was obtained to permit easy access to the cervix. Seeking now for the ureter, easily found owing to the probe, it was seen to be below the incision, well out of reach of danger. Delivery by version was next accomplished. While dragging out the child, frequent examinations of the position of the ureter were made, and after delivery it was carefully looked over. During extraction it was pressed downward and against the pelvic wall, its displacement being trivial. After extraction it was found just below the rent, in its normal position, and, as shown in the specimen, intact.

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* "N. Y. Med. Jour.," Oct., Nov., 1878.

I felt the necessity for a careful study of this subject, both before and after operating, for the purpose of establishing definite rules for guidance in locating the ureters in cases calling for this or kindred operations. The best description of the position of the ureters I have found is that given by Dr. Garrigues, but in my cases it was found unsatisfactory, for the reason that the observations were made on non-pregnant subjects, and the relations within the pelvic canal were in the main such as exist between the ureters and the uterus and vagina, movable bodies. For guidance, then, especially in operating from without inward, I think it better to locate the ureters with reference to bony or fixed points.

In the first place, I have found that the ureters do not follow the pelvic wall to a point near the ischial spine, as in the non-pregnant condition. I have found their courses to be as follows: Crossing the pelvic brim at the common iliac bifurcation, the left just behind, the right just in front, of that point, they descend into the canal to the brim of the bony pelvis, the point being about the synchondrosis. In this course they accompany the internal iliac artery, the right in front of the vessel, the left crossing it obliquely.

Reaching the bony brim (the ilio-pectineal line), they leave the pelvic wall, emerging from beneath the base of the broad ligaments (in pregnancy about on a level with the pelvic brim, and carried

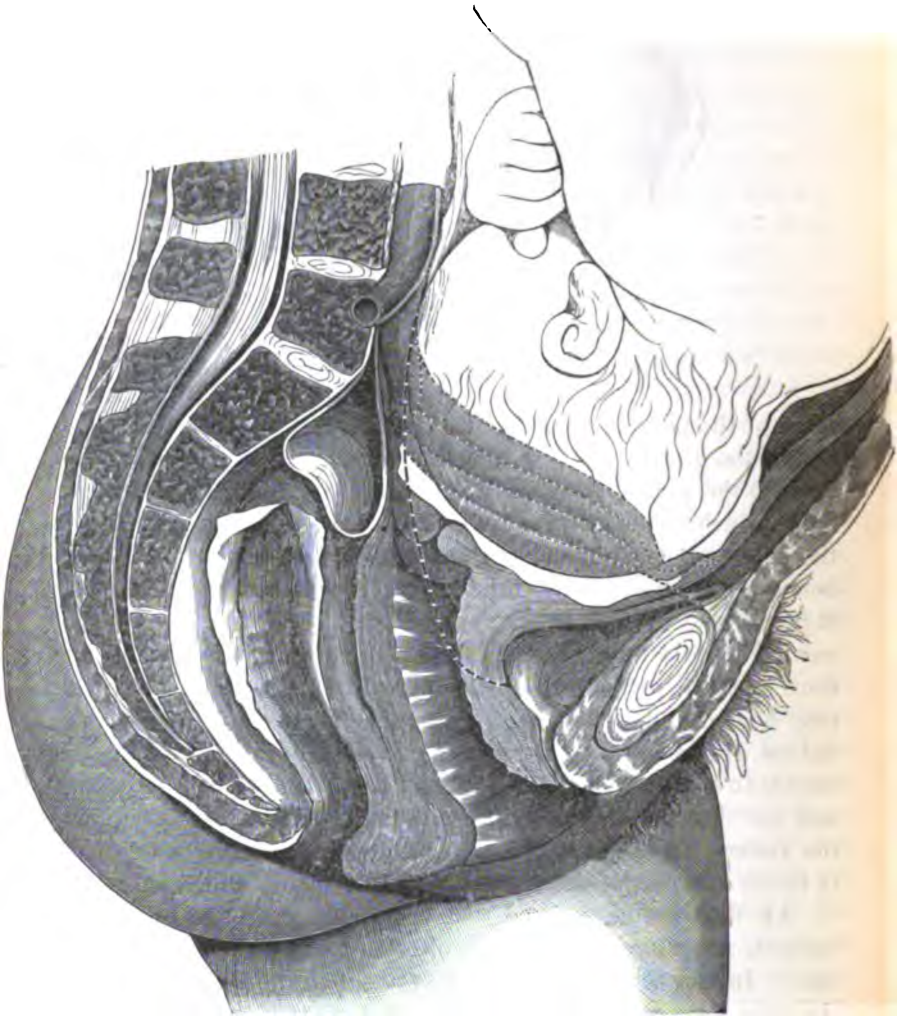

Fig. 1.

back on a line with the synchondrosis), and take a course downward, forward, and somewhat inward, passing about midway between the pelvic wall and the cervico-vaginal junction, but approaching very closely the antero-lateral wall of the vagina, as they turn more decidedly inward, on a lower plane, to strike the base of the bladder three quarters of an inch below the cervix, terminating finally in the bladder at a point (the subject being on the back) just two inches below the spine of the pubes.

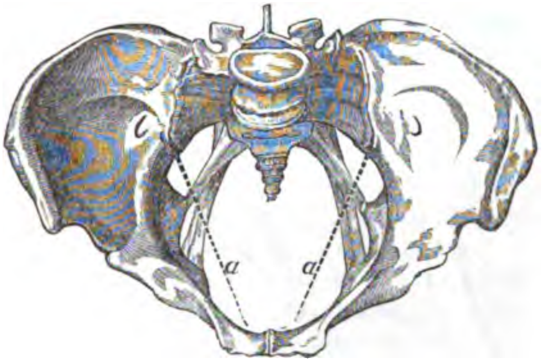

Fig. 2.

A line drawn from the bifurcation of the common iliac to the spine of the pubes I have found to correspond in the main to the line of the ureters. Along this line they have the following relations to the pelvic brim (in the recent state): At the bifurcation, half an inch below; at the extremities of the transverse diameter of the pelvis, about an inch; and at the spine of the pubes, two inches below. As a whole, the tubes in the pelvis are situated upon a higher plane than in the non-pregnant condition, having been carried slightly upward while being separated from their close relations with the pelvic wall by the ascending uterus. How far they may be elevated in a case of extreme pelvic deformity with a pendulous abdomen, with the uterus correspondingly displaced, I am unable to say; but I think it probable that, the bladder being empty and not dragged upward, thus preserving the normal position of the vesical end of the tubes, the displacement would not be such as to bring any part of them much above the points indicated.

Another matter, which I took occasion to investigate in the last subject, was the ground of the objection to operating upon the left side. In view of the strong probability that the operation can be done on the same side but once, this is a very important question. As has been said, I did the operation upon the left side, the vessels being injected with plaster and the rectum distended. As is well known, the rectum is the supposed obstructor. I found that it offered no such obstacle as has been supposed, and that the operation was as feasible upon one side as upon the other. After the operation this organ was carefully examined, and found in no way disturbed. In looking at its position this was readily accounted for; it lies behind the broad ligament. In entering and leaving the pelvic canal we cross the brim between the base of the broad ligament and the posterior surface of the bladder. This latter is about on a line with the ilio-pectineal eminence, while the former is as far back as the synchondrosis; here is ample space for manipulation and extraction.

The important structures that I regard as most likely to suffer are the vessels going to the uterus through the broad ligaments. These, by being stretched and dragged upon in extraction, might be torn if the sides of the incision were not carefully supported in cases requiring powerful traction. I consider, then, that the rectum is far enough back not to be an impediment, and that, while the operation upon the right side is, perhaps, more convenient for the operator, so far as the interest of the patient is touched, it is as feasible upon one side as upon the other.

To avoid lacerations of the cervix, and their probable extension into the body of the uterus, it is necessary to tip the uterus as far as possible over to the side opposite the incision, so as to bring the cervix above the brim; then, in extracting, the child should be made to hug the pelvis closely, for, if we make traction in an upward direction, the strain upon the lower uterine segment is greater than, in many cases, it can bear.

CASES IN GYNÆCOLOGICAL PRACTICE.

By JAMES B. HUNTER, M.D.,

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The following cases are reported because of their frequency rather than their rarity. Extraordinary cases are sure to be fully described, while those of every-day occurrence are often passed over as of little consequence. In the belief that the latter possess some interest and value to many readers, I purpose to present, from time to time, sketches of a few cases as they occur in my service at the Woman's Hospital. In the preparation of those given below I have been kindly assisted by Dr. A. F. Currier, late House Surgeon.

Case I. Procidentia Uteri; Operation; Cure.—A. B., admitted September 30, 1881; age, 48; native of Ireland; married twenty-four years. Has had six children and one miscarriage. The last labor was seventeen years ago, and is said to have lasted twenty-four hours. Menstruation is regular, but becoming scanty. The bowels are regular, appetite fair, and general health good. Nine years ago she began to suffer from a sense of dragging and bearing down.

A year later the uterus became prolapsed, and has since then always been "outside the body," to use her own words, except when she was lying down. Placed on the back, with the knees separated and the thighs flexed, the uterus was seen to protrude between the vulva. By gentle pressure it could easily be replaced. There was entire want of the perineal body, and as it seemed that its restoration would probably keep the uterus from descending, it was decided to perform an operation with that object. For about two weeks the patient was treated by hot-water vaginal injections twice a day, given while she was lying down, and lasting twenty minutes at a time. The bowels were kept open by mild cathartics. The morning before the operation an enema of warm water was used.

The operation performed was nearly the same as that usually done for closing the lacerated perinæum, except that the posterior wall of the vagina was denuded to a higher point, and drawn down to be included in the new perinæum. Nine silver-wire sutures were used, and removed on the eighth day, when union was found to be perfect. The patient was discharged three weeks later. She was examined again five months after her discharge, and the uterus was found to be in position and so firmly supported that it seemed impossible for it to come down. The woman had in the interval been standing, walking, and doing all her usual house-work.

CASE II. LACERATION OF PERINÆUM AND CERVIX UTERI; PROLAPSUS UTERI; OPERATION; CURE.—Admitted November 27, 1881. K. H., aged 48 years; married twenty-seven years. Has had eleven children and two miscarriages. The last child was born eight years ago, after a severe and protracted labor. She has never been pregnant since, but has suffered much from menorrhagia. For ten years past she has complained of bearing-down pains on standing or walking, with pains in the back and sides, and for several years has noticed that when standing "the womb came outside the body."

On examination the uterus was found to be prolapsed, the perinæum being ruptured down to the sphincter, and there was a deep laceration on the right side of the cervix.

Nov. 28th.—The patient, having been prepared before entering the hospital, was etherized, and the rent in the cervix was closed by three silver sutures, while the uterus was prolapsed. The uterus was then replaced, and an operation done upon the anterior wall of the vagina. An ellipse three inches long and an inch and three quarters in width was denuded and brought together by ten silver sutures.

Dec. 8th.—The sutures were all removed, and union was found to be complete in the cervix and partial in the anterior wall. The latter was, however, sufficiently narrowed to afford considerable support to the uterus.

Dec. 19th.—The usual operation for closing the perinæum was performed, care being taken to include as much a spossible of the redundant posterior wall of the vagina. Ten days later the sutures were removed, and the parts found firmly united.

Jan. 14, 1882.—The uterus remains in place, and can barely be reached by the finger when the patient is standing. A few days afterward she was discharged.

Remarks.—It is not always possible, in cases like these, to hold the uterus up by a perineal support alone, even where the posterior wall of the vagina is drawn down and complete union secured. I was formerly in the habit of operating on the vagina first, denuding the margins of an ellipse, and uniting the raw surfaces, in order to dispose of the redundant posterior wall, but I did not get as good results as I do now by a single operation. The permanency of the result in all such cases can be judged of only after the lapse of a year or more. In many cases, especially if the patient is stout, and stands or lifts much, the perinæum, no matter how firm it may have been made, will gradually yield. This may be prevented if a pessary is carefully adjusted before the perinæum has been subjected to pressure. In women past the menopause a better result is to be expected than in younger women. In any case, if the operation is well done, the condition of the patient is made much more comfortable, and she is much better able to avail herself of some mechanical support. After this and similar operations it matters little whether the bowels are moved or not during the first week. It is very important that they should be thoroughly moved before the operation. For the first three or four days there is generally pain enough to need some opiate, and that causes constipation. Soon after the sutures are removed an enema should be given, and the nurse should be particularly careful that no injury is done by straining, or by the passage of hard fæcal lumps.

CASE III. LACERATION OF CERVIX AND PERINÆUM; OPERATION; CURE.—C. D., admitted February 9, 1881, aged 31 years. Married five years. Has had three children, the last one four months ago. Since the birth of the last child she has suffered from pain in both sides, and in the abdomen, with a sense of bearing down; also from constipation and headache. On examination the perinæum was found to be torn down to the sphincter ani muscle, causing marked rectocele. There was also extensive unilateral laceration of the cervix, with congestion and tenderness, and a profuse glairy discharge. Under the use of hot-water injections the tenderness diminished, and the cervix appeared less congested.

Feb. 28th.—The patient having been etherized, the torn edges of the cervix were made bare and brought together by three silver-wire sutures. The perinæum was closed at the same time, in the usual manner, eleven sutures being used. On the eighth day the sutures were removed from the perinæum, and union was found to be complete.

March 17th.—The perinæum was firm enough to admit a small speculum, and the sutures were then removed from the cervix, which had also united perfectly. The patient was discharged, cured, April 2d, feeling quite well.

CASE IV. LACERATION OF CERVIX AND PERINÆUM; OPERATION; CURE.—A. C., admitted February 12, 1881, aged 24 years. Has been married three years, and has had one child, eighteen months ago. Since that time she has been unable to walk or stand with comfort, has had almost constant pain in the back, obstinate constipation, loss of appetite, and profuse leucorrhœa. She was unable to do her house-work, and therefore applied at the hospital for relief. Examination revealed laceration of both cervix and perinæum. The cervix had been torn bilaterally.

Feb. 17th.—The patient having been placed under the influence of ether, the torn surfaces of the cervix were denuded and brought together by three silver sutures on one side and one on the other. Directly afterward the patient was placed on the back, and the perinæum was closed in the usual manner. On the eighth day the sutures were removed from the perinæum, and one week later those from the cervix were removed also. Both operations were entirely successful, and the patient was discharged March 17th. Three months later she reported, and was feeling greatly improved in every respect; and six months after the operation she had gained remarkably in general health, had a hearty appetite, and was feeling quite well.

Remarks.—The last two cases are among a large number in which I have performed the operation on the cervix and that on the perinæum at the same time. Several years ago I tried this method in a hospital patient, who could not remain long enough to have the operations done at the usual interval of two or three weeks. It succeeded as well as possible. I have since done the double operation frequently, both in hospital and private practice, and have never had occasion to regret it. If, however, the laceration of the cervix is very extensive, or any condition exists that renders hæmorrhage probable, I always do the operations separately. Sometimes, too, it is not desirable to keep the patient long under ether, in which case the operations should not be done at the same time. The disadvantages of the double operation are: that it is impossible to reach the cervix, if it should be necessary, without sacrificing the new perinæum; that the patient is longer under the influence of ether; and that the sutures can not be removed from the cervix so soon. The advantages are: that the patient takes ether only once, and that she and her friends are spared the preparation (always somewhat formidable in a private family) for two operations; that there is an economy in time, as she lies in bed no longer than if the operation on the perinæum alone had been done; that a delicate patient suffers less fatigue, and is less emaciated than she would be after having gone through two separate operations.

I usually remove the sutures from the perinæum on the eighth day, and those from the cervix two weeks later, though with care the latter may be safely taken out earlier; while, on the other hand, there is no objection to letting them remain a month or more if it is convenient to do so, as they cause no irritation or inconvenience if the twisted ends of the wire are properly bent over and out of the way. While, therefore, I do not recommend the double operation as a rule, I consider it entirely practicable in many cases, and often prefer to do it.

THE DEVELOPMENT OF THE EYE.

By WILLIAM C. AYRES, M.D.

II.

THE CAPSULE OF THE LENS.

In the article on the development of the eye which appeared in the July number of this journal we saw that, as the primary ocular vesicle developed from the walls of the anterior cerebral vesicle and made its way toward the outer surface, it displaced the middle germinal layer (mesoderma) in its progress until it nearly reached the outer layer of the head.

An actual contact never obtains, however, a small transparent or semi-transparent stripe of the middle layer always remaining between them. To this stripe the eye is indebted for the formative material from which it is to produce the capsule of the lens, and the vitreous, in the following manner:

We have observed that, when the primary ocular vesicle or young retina had taken up its position near the ectoderma, this last layer commenced to experience a proliferation of its cells just in front of the anterior pole of the retinal bulb, and immediately formed a depression which encroached upon it. This depression was the beginning of the production of the lens vesicle. It became deeper, and its tissue sank into the substance of the head to produce the lens. In seeking the position in which it was to form this part of the eye, it carried in front of it the thin mesodermic stripe in such a manner as to be completely surrounded by the tissue of the middle germinal layer (as in Fig. 4).

It is of particular importance to notice that this mesodermic tissue is rarely carried along in front of the lens, and also that the stripe is never broken, but hangs to the mesoderma on all sides, and contains both cells, which are identical with those of the middle layer, and blood-vessels, which are continuous with those of this layer, as seen in Figs. 3 and 4. At this stage the whole region between the lens vesicle and retina is filled with a tissue which is homogeneous, abutting against the retina on the one side and the lens vesicle on the other. So that the line of demarkation between it and the lens has but a single, well-defined contour. It surrounds the whole lens, because, as the lens vesicle passed inward, it carried the mesodermic stripe in front of it; this stripe remained continuous with the middle layer on the sides, and, since this middle layer pushes in in front of the lens vesicle or between it and the ectoderma to furnish the tissue from which the cornea will be produced, the whole lens is surrounded by the mesoderma.

As before remarked, in the beginning there is no capsule, the whole vitreous tissue being the same throughout, abutting against the lens vesicle with a single contour. This condition continues, in the case of the ox, until the embryo has reached the length of 15-18 mm. After this age, we can observe with high powers that there is a second, faint line making its appearance parallel to the original boundary line of the vitreous. At this period, though we see the evidences of the formation of the hyaline capsule, its tissue holds no relation to the lens, except that it surrounds it. When the lens vesicle, or lens body, and the vitreous tissue are separated by violence to the specimen in preparation, this double contour always remains attached to the vitreous, never to the lens, showing an intimate connection to the one, and only a relation to the other which it retains simply by virtue of its position. At a date somewhat more advanced, when this separation takes place, the small zone of homogeneous transparent capsular tissue is sometimes detached, and exists isolated from either, but subsequently it remains adherent to the lens, when it has all the characteristics of the hyaline capsule of adult life, with the exception that it is much thinner. This process, though strange, is one which we frequently meet with in the formation of other parts of the eye; viz., a tissue which has cells, etc., in it in all of its parts, frees itself of these cells at its edges, and develops a homogeneous boundary in the shape of a hyaline membrane. The same takes place in the formation of the membranes of Bowman and Descemet in the cornea, and also in the lamina elastica of the choroid, as we shall see when we come to look into the development of these portions of the embryo.

Notice, then, that the lens body is a production of the outer or ectodermic layer, and has, consequently, the character of epithelial tissue, whereas its capsule is a product of the mesoderma, and, since it is directly formed from that portion of it which lies just beneath the epithelium, has the nature of cutaneous tissue; both of which are facts of great importance for the proper understanding of the pathological processes which are seen in these tissues in disease. For instance, the lens, being an epithelial formation, can never ossify, contrary to an opinion which has gained some ground in the profession; bone can and does form within the lens capsule, but for the individual lens fiber to ossify is impossible. Those who hold the opposite opinion simply overlook its method of development, or hold it in direct opposition to all the laws of histogenesis.

After the opinion of Huschke, that the hyaline capsule of the lens was a product of the ectoderma, had been demonstrated to be incorrect, the view generally accepted was, that it was produced from the formative cells of the lens body by a kind of secretory action. Remak * is very reserved on this point, only saying that a question still exists as to whether the hyaline capsule is a product of the ectoderma or of the mesoderma, and acknowledges his inability to solve it, stating at the same time that, were he called upon to deliver an opinion, he would give the mesoderma the preference. Kölliker,† a more modern embryologist, asserts most positively that the capsule is not a product of the outer layer, nor has it its origin in a secretory action of the formative cells of the walls of the lens vesicle. According to him, it is pushed in behind the lens as it recedes from the surface; hangs continuous with the tissue of the mesoderma, and is undoubtedly a part of the same. Kessler ‡ is strenuously opposed to such a view, and insists on its production from the formative cells of the lens vesicle. Lieberkühn * agrees with Kölliker, and says that the capsule comes from the mesoderma, and constitutes the boundary between the substantia propria lentis and the tissue of the vitreous body. Zernoff's observations are in accord with those of Kölliker and Lieberkühn in almost every particular. J. Arnold ‖ gives a fine description, and, since his writings are in reference to the eye of the ox embryo, analogous to the earlier formations in man, I take the liberty of quoting him more fully. He says that, in the case of the young ox of 6 mm. in length, he found a moderately broad stripe of tissue between the ectoderma and the primary ocular vesicle, which stood in continuity with the tissue of the mesoderma (as is shown in our Fig. 2). At the size of 9 mm. the lens had already begun to form, in the shape of a solid thickening of the ectoderma, and the anterior portion of the primary ocular vesicle was somewhat pushed backward. Between them still existed the stripe of transparent tissue, which was continuous with the mesoderma all around. At the size of 12 mm. the lens vesicle had been detached from the ectoderma, and was surrounded on all sides by the same semi-transparent tissue, standing in direct continuation with that of the middle germinal layer. I have had the pleasure of examining all of Professor Arnold's preparations, and have satisfied myself of the true condition as he describes it, and, besides, they are precisely identical with those in my own possession. (See Fig. 2.)

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* "Entwickelung des Auges," p. 91.

† "Entwickelung des Menschen," 1879, p. 297.

‡ "Entwickelung des Auges der Wirbelthiere," 1877, p. 45.

* "Ueber das Auge des Wirbelthierembryo," 1872.

‖ "Entwickelung des Auges," p. 40.

We see, then, contrary to the opinion of Kessler, that the mooted mesodermic stripe really exists between the ectoderma and the primary ocular vesicle, and, also, that when the lens vesicle recedes, this tissue is carried along in front of it, and remains in front of it in all later stages. According to my own specimens, this tissue always contains cells and blood-vessels.

Kessler declares that in the case of the chick, dog, sheep, etc., the primary ocular vesicle lies for a time in immediate contact with the ectoderma, and attacks other authors by saying that perhaps their specimens were not properly hardened; be this as it may, the hardening of a delicate fœtal tissue could distort or even do away with so thin a stripe by shrinkage (provided it broke in the middle and afterward retracted toward the sides), as in his case, but we have no evidence of such a process ever having formed a tissue *de novo*. Therefore, the probability is, that, since this tissue is found under all circumstances by other authors than himself, he is in error. At any rate, the weight of authority is against him.

I have stated above that this tissue contained blood-vessels at all times. They extend into it from the mesoderma on the sides, and also pass down between the lens vesicle and the retina, surrounding the lens with a complete circle of capillaries, the significance of which we shall see hereafter.

We may, therefore, sum up by saying that the hyaline capsule of the lens is a product of the mesoderma, and that, since it has come from a tissue which at one time held a position immediately below the epithelium of the head, it must be analogous to cutaneous tissue. In the beginning it only appears as the outer parts of the vitreous, and is not to be distinguished from it. A little later it has a double contour, but still hangs to the vitreous when it is separated from the lens. At a subsequent stage it becomes detached from the vitreous and applies itself to the lens, when it represents its capsule precisely as we find it in well-developed eyes.

According to these facts, it would be impossible to look upon it as a product of the formative cells of the lens vesicle, and, besides, we have seen that these cells lengthen out and become fibers, requiring a great activity on their part, which almost excludes, of itself, any such idea as that they could be busy in secreting a substance for the formation of an additional tissue in their vicinity.

The views of Kessler are so remarkable that, were his starting-point correct, it would be interesting to follow him in his arguments in support of a secretory action, and to examine the peculiar hypotheses into which he is forced, to justify his belief. The other method is, however, much more simple, and is based upon the combined observations of the whole profession except himself; therefore, I am inclined to believe that his theory is doomed to decay.

THE BLOOD SUPPLY OF THE FŒTAL EYE.

If we examine a section through the head of a very young embryo, we notice that at a time when the primary ocular vesicle is still forming we find little streaks of red blood corpuscles running through the mesoderma, especially surrounding the embryonic brain. These blood streaks are young blood-vessels, which have no appreciable walls. When the vesicle pushes its way through the mesoderma these vessels can be seen to surround it, more or less, in its whole circumference, but to be situated at a distance from it, there being a small quantity of mesodermic tissue between.

By examining Fig. 2 it will be seen that a small branch passes between the vesicle and the ectoderma, extending to a considerable distance, but in our specimen we can not trace its continuity with those of the other side, nor do we find any returning twig; it is probably not in the plane of the section, if it exists at all.

When the lens sinks in, these blood-vessels can be found passing in behind it, so as to come into the tissue of the vitreous, where they branch and anastomose, forming a complete system of small arteries and veins, which fill up the whole vitreous chamber. They also pass over in front of the lens vesicle after it has been detached, and communicate with those of the other side, thereby inclosing the lens within a complete system of blood-channels. This system is styled the *tunica vasculosa lentis.* (See Fig. 10.)

When the embryo is 12 mm. long, in the case of the ox, there happens one of the greatest peculiarities in the formation of the eye, viz., the entrance of the central or hyaloid artery. Just before it enters, a section will give the secondary ocular vesicle whole and entire, with a goodly supply of blood-vessels in the vitreous chamber. At the lower side of the young eye one of the larger vessels of the mesoderma applies itself to the outer wall of the secondary ocular vesicle, forces an entrance by a complete section of both of its walls, and takes up a position within the eye, where it passes directly to the posterior wall of the lens vesicle and sends off branches which anastomose freely with those which come from the mesoderma in front. This mechanism can be illustrated quite nicely if we take a goblet and imagine the globe of it to correspond to the walls of the secondary ocular vesicles, its cavity to the vitreous chamber, that part which connects the globe and the base to the stylus for the optic nerve, and the base to a portion of the walls of the anterior cerebral vesicle. If we place a string along the outer side of the globe, and imagine it pulled with so much force as to cut its way through the glass and enter its cavity, we have an analogue of the entrance of the arteria hyaloidea.

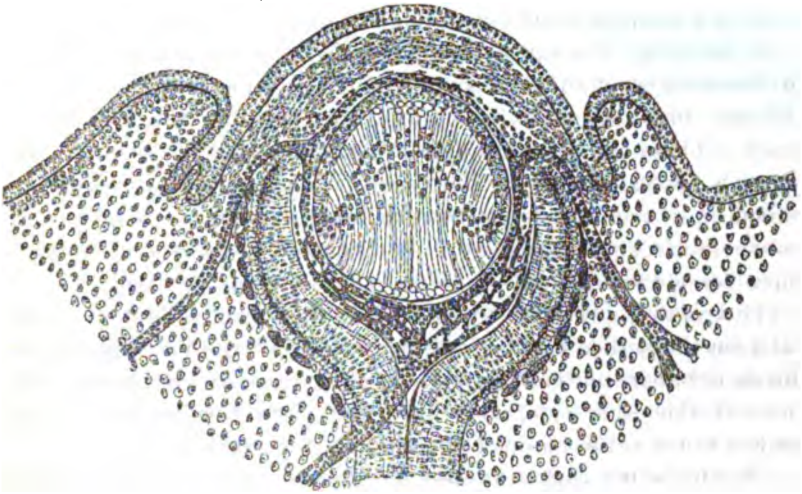

FIG. 10.—A section through the entire eye and surroundings of an embryo 28–30 mm. in length. The large, round object in the center is the young lens, showing the direction of the fibers, etc. Surrounding it is a complete system of capillaries, which communicate with the vessels of the mesoderm on both sides. Behind the lens are the vessels of the vitreous, with the central artery passing out of the eye at about the junction of the future sheath of the optic nerve and the sclera. That part which is pierced by it is the secondary ocular vesicle or young retina. The darker objects which surround it are parts of vessels destined to form the choroid. In front is the cornea. The two larger nodules, one on either side, are the young lids. To the left, the reduplication is the beginning of the membrana nictitans, since the specimen is from the ox. The vessels which run between the lens and the cornea constitute the membrana pupillaris; the whole system around, the membrana capsulo-pupillaris. We shall frequently refer to this figure.

I have a specimen in my collection in which this entrance has only partially taken place, so that the artery has just passed through the outer layer of the secondary ocular vesicle, and runs between it and the inner wall all the way up to the communication of the two walls anteriorly. Here it again communicates with a vessel which extends outward into the mesoderma. The defect produced by this entrance is called the *scissura*, the importance of which we shall find when we come to study the formation of colobomata.

Special stress may also be placed on the fact that the hyaloid artery, immediately after its entrance into the cavity of the secondary ocular vesicle, passes through the wall in an oblique direction, at some distance from the optic nerve, so that a certain portion of undisturbed retina remains between them. The position of entrance then approaches near to the papilla, the original and each successive hole where the artery was last found being closed up as the artery migrates toward the optic-nerve entrance. When it reaches this locality it runs almost through the center of the inner surface of the papilla, but has an oblique course, leaving the outer surface of the eye near the junction of the sclera with the outer optic-nerve sheath. (See Fig. 11.) This is also of importance in the etiology of coloboma of the optic nerve and sheath when it exists without a corresponding defect in the choroid and retina.

It has long been known that this system of blood-vessels existed in the embryonic eye, but its relation to the development of the different members has only been appreciated of late, and principally from the labors of Lieberkühn and Zernoff. Schoeller* published a treatise on the development of the eye as late as 1848, in which is stated that that part of the above-described system of blood-vessels which lies in front of the lens is intended to produce a part of the choroid, but Kölliker † writes that, since these vessels stand in direct communication with those of the same system behind the lens, which can have nothing to do with the choroid (the whole thickness of the retina being interposed between them), it is not probable that any part of this embryonic system can be concerned in the formation of this portion of the uveal tract. According to him, every theory advanced as to the function of this system must be based upon the fact that this network of vessels surrounds the whole lens, and that those in front, at the side, and behind the lens, stand in direct communication with each other. He looks upon the capsule of the lens as representing the cutis which was pushed into the cavity of the secondary ocular vesicle, and upon these vessels as a system which was brought into its place by the same cause, upholding this theory from the examination of a human embryo of four weeks, in which the lens had already a well-developed outer capsule.

Again, Kessler (*loc. cit.*) is positive in his denial of the validity of such a theory, as in all eyes which he had examined he never found any part of the cutis which had been pushed in by the lens. He places an entirely different construction upon the fact that blood-vessels are found in the vitreous chamber at so early a stage, and contends that they have their origin in branches of the hyaloid artery. He says that the entrance of the central artery and the sinking in of the lens are simultaneous occurrences. This artery enters the cavity of the secondary ocular vesicle, runs to the lens, and sends off branches which pass forward and communicate with those of the mesoderma in front. The exterior part of this vessel represents the arteria centralis retinæ, whereas the interior is the arteria hyaloidea.

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* "De Oculi Evolutione," 1848.

† *Op. cit.*, p. 296.

Zernoff and Lieberkühn (*loc. cit.*) uphold the opinion of Kölliker as to the cutaneous origin, and state that the vessels from in front go down into the cavity of the vitreous independent of the entrance of the hyaloidea. That part of the system which is found in the place where the pupil is to be made is called the *membrana pupillaris* (see Fig. 11), the whole system being the *membrana capsulo-pupillaris.* The vessels in the former membrane are accompanied by veins, which are subsequently to lie in the iris.

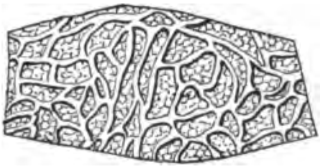

FIG. 11.—A portion of the membrana pupillaris. It was separated from an eye and examined as a flat preparation.

J. Arnold holds, again, another opinion: In the embryo of the ox, of 12 mm. in length, the system of vessels which lies in front of the lens does not extend behind it, but the vitreous chamber is free from blood-vessels. In the embryo of 15 mm., an artery (hyaloidea) has entered the cavity of the secondary ocular vesicle, and sent off branches which have not as yet reached the posterior surface of the lens, forming no communication with those in front. As the development goes on, these vessels approach nearer to the lens capsule, and in the embryo of 23 mm. an extensive anastomosis is established between these two systems (behind and in front of the lens). According to this view, the two parts derive their blood-vessels from different sources, but they afterward anastomose in the region of the formative zone of the lens. In proportion with the increase in the number of blood-vessels in the vitreous the number of cells also is augmented.

Let us follow the ideas of Kessler for a moment, and see to what his theory would lead. He describes the case of an embryo* in which, he holds, the primary ocular vesicle had extended so far out into the mesoderma as to lie in direct contact with the ectoderma, the two being separated only by a line of single contour, and rightly concludes that, if this be the case, such a histogenesis of the lens capsule and vitreous as is above described would be impossible. There would be no mesodermic tissue between the ectoderma and the ocular vesicle. This condition of contact remains when the lens has receded from the head and the secondary ocular vesicle is produced, until we find the branches of the arteria centralis between them. When a distinct space is formed, he holds that it has been the result of the hardening process, adding that this can be easily accomplished, since any shrinkage would pull the lens forward and the retina backward, thereby having a double effect in separation. He admits that at the proper time blood appears between them, but with the highest powers he has never been able to find a single cell. *In all of my own preparations these are present in the greatest abundance.*

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* *Op. cit.*, p. 58.

He says that when a separation had taken place in his preparations the lens always had a sharp contour, which he considers its capsule, and therefore holds that at the time when the lens is detached from the ectoderma the hyaline capsule is formed as a separate and independent member. Further, he remarks that in specimens badly hardened the capsule became detached and was plainly seen—acknowledging at any rate that his preparations were badly hardened. He winds up by saying that the hyaline capsule is formed before the complete separation of the lens from the ectoderma, and is a formation from this latter germinal layer, one in the production of which the middle layer, or mesoderma, has taken no part. Further, the tunica vasculosa lentis does not exist. He admits that a great many vessels lie behind the lens, but states that they do not run in a true tissue, being perfectly isolated upon the surface of the lens, and that when they do not touch it a fluid is formed between. Moreover, he maintains that the same condition of affairs obtains in front of the lens and remains through the whole of fœtal life, and that in the case of the mouse, the rat, the sheep, and the rabbit, the membranæ capsularis and capsulo-pupillaris are creations of the imagination of the authors who describe them. There is no doubt that all the cells anterior to the lens are intended for the formation of the cornea, with the exception of perhaps a few, situated to the side, which may be intended to take part in the production of the iris. Even in this condition the vessels lie free upon the anterior surface of the lens, where no trace of a membrane can be detected. In the meshes of these vessels the aqueous humor can be seen, precisely as we find the vitreous behind. *If he denies the existence of a membrane in this locality, he must find difficulty in explaining the membrana pupillaris perseverans.* What can be termed a membrane, he says, he considers a formation from the adventitia of the blood-vessels. He insists that there can be only one kind of lens capsule, and that that is a hyaline structure of very early formation, produced even before the lens has become detached from the epithelium of the head. It remains the same throughout life, the only change imposed upon it being its increase in thickness.

The reason why I have followed him in his idea of an actual contact of the primary ocular vesicle and the ectoderma will be seen when we consider what an enormous influence its existence or non-existence has in the development of nearly all the inner members of the eye. The birthright of the hyaline capsule of the lens, the tunica vasculosa lentis, the membrana pupillaris, and the iris, is at stake; the anterior chamber, the ligamenta pectinatum and suspensorium, and also the corpus ciliare, are all more or less dependent upon it for their formation.

I can only state that I have examined most of the animals which Kessler has cited, and must say that I am not able to agree with him in any particular. This mesodermic stripe always exists, and always contains both blood-vessels and cells with nuclei, and I must, therefore, insist upon the method of formation described in the beginning of this article, since I have witnessed it not only in my own collection of several hundred specimens, but also in that of Professor J. Arnold, of Heidelberg.

THE ZONULA CILIARIS AND THE CORPUS VITREUM.

Concerning this part of the development of the eye there is but little to be found in literature. The best description is given by Lieberkühn when he states that, at the border between the corpus vitreum and the retina, behind the ora serrata, the first fine fibers of the suspensory ligament commence, and, as they pass forward, they continually receive an increase in their number. They cross each other in that part of their course which corresponds to the elevations and depressions of the ciliary processes. Here they receive a greater increase, when the whole body of the ligament passes inward toward the surface of the lens. In some cases many of these fine fibers combine into bundles, and these, uniting again, form large homogeneous bodies. These may, again, separate before they reach the lens capsule, and if they do they form fine fibers which run either parallel or slightly oblique to their former course. Some sink deep into the cavity of the vitreous; but those which pass directly toward the lens often form themselves into compact masses before reaching it. At the surface of the lens they again divide into the finest fibrillæ, the whole forming two distinct portions, the one going upward and uniting itself to the anterior capsule in an irregular manner, the other passing downward and attaching itself to the capsule below. C. O. Weber * considers the

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* "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," xix, p. 386.

fibers of the zonula to be productions from the blood-vessels in the vitreous behind the lens. Iwanow* writes that they are late formations, which do not appear until all the vessels in the vitreous have been done away with. It commences with this last process, and they both advance together in an inverse ratio.

As to the vitreous, we have frequently had occasion to remark that when the lens receded from the ectoderma it carried along in front of it a thin stripe of the mesoderma, which always contained cells and blood-vessels. At first it is only a narrow stripe of tissue with cells and intercellular substance, separating the lens vesicle from the retina; as the eye increases in size its volume becomes larger and larger, but it always retains the same characteristics as it had in the beginning. It so encroaches upon the retina in its development that the supporting fibers of Müller project into it, giving the line of division a dentated appearance, the significance of which, in the production of the internal limitans, we shall see when we study the development of the retina.

I would like to call attention to one fact in Nature which, to my knowledge, has never been referred to by authors—viz.: in all animals, including fishes, etc., which have a slimy secretion on their skin, the vitreous is always of the same consistence as this secretion—a fact which certainly seems to indicate some relation between them. I would, therefore, state that the vitreous is of cutaneous origin, especially since we see that it is produced from a stripe of tissue which at one time was immediately beneath the ectoderma.

I remember that, when studying this part of the subject for the first time, it seemed to me rather flat. And it may seem so to some readers, but since then it has continually increased in interest, until it has become the most fascinating of all. What could be more peculiar or incomprehensible than the fact that the lens body should be produced from epithelial tissue: an independent member in the interior of the eye produced from the external germinal layer, from which it is completely separated in the adult eye, and with which it can have no ultimate connection? Then, again, in the case of the capsule, we see the body of the lens produced from epithelial tissue, and the capsule, its most intimate associate, having its origin from an entirely different germinal layer. In the beginning it is only a part of the vitreous, having cells and intercellular substance, but afterward it rids itself of these cells, becomes an independent membrane, and weds itself to the lens, from which it never separates in after-life.

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* Stricker's "Histologie," vol ii, p. 1075.

The hyaloid artery enters after the retina has taken on a form most conducive to its further development, and actually destroys a part of what has already been done, just as if its only intent were to bring about a condition which could afterward result in a coloboma, a condition which is positively a disadvantage to the eye as a whole.

Of the laws which these methods of Nature carry out we know nothing, but it is certainly gratifying to have a knowledge of the resulting conditions, even if we are not able to trace the true relation of cause and effect.

THE CORNEA AND THE ANTERIOR CHAMBER.

In the adult eye, next to the retina in complication of structure comes the cornea, and it is the office of this section to see how the simplest of embryonic tissues becomes transformed into one of the most peculiar of all the structures of the body. I will begin by giving the results of my own investigations, and will then see how they agree or disagree with those of authors. But, before doing this, I would remark that mine were derived from the embryo of the ox, embracing a series of fœtuses from six mm. in length up to as large as desired; and I have selected this particular animal on account of its great similarity to the human fœtus.

It is quite a mooted matter in embryology, and I therefore used only well-hardened specimens, so as to eliminate all possible errors from defective preparation. I, however, agree with Lieberkühn that there is no peculiar advantage in using osmic acid, since a careful preparation in Müller's fluid and alcohol leaves nothing to be desired. There is, however, one technical device which I can strongly recommend, which is first to color the whole animal in carmine, and then to mount it in cocoa butter.*

The primary ocular vesicle appeared of different sizes in animals of the same length, which is to be explained by the fact that the plane of section did not always pass through the center of the vesicle. In all cases where the distance of the apex of the vesicle from the ectoderm was great there was always a well-developed tissue between them. It varied in thickness, of course, as the section was made farther to the side, but in all cases it contained cells, intercellular substance, and blood-vessels.

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* For fear this method of preparation may not be perfectly familiar to all, I take the liberty of giving details: First, color the entire fœtus with carmine by letting it remain in a moderately strong solution for a day or two. Then extract the water by absolute alcohol, after which soak in oil of cloves until the whole embryo becomes transparent. Take melted cocoa butter (not too hot), and place the animal in it in the proper position for cutting. The butter will go through the tissue, without doing any damage, so that when sections are made we can cut as if there were nothing but a solid piece of butter before the knife. Place the sections again in oil of cloves or oil of turpentine until the butter is removed. Dissolve out the oil with absolute alcohol, and the preparations will have been obtained with a minimum risk of distortion by manipulation. Mount either in glycerine or in Canada balsam.

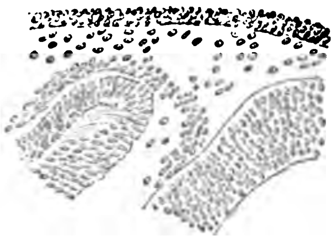

FIG. 12.—The first formation of the cornea. The cells above represent the epithelium; the double contour below and to the right, a part of the lens vesicle; below and to the left, one end of the secondary ocular vesicle or young retina. The tract of cells surrounding this is a young blood-vessel which passes over the secondary ocular vesicle, and down behind the lens. All the rest, which is clear tissue, with but few cells, is the tissue of the cornea, just after the lens has receded and the mesoderm has pushed in between it and the ectoderm.

When the section passed near the middle of the vesicle, the intervening stripe of tissue was quite thin, and the cells were fewer in number; but in no case did the vesicle and ectoderm lie in contact with each other, nor even come so close but that it was possible to detect, not only the intervening tissue, but also the embryonic cells of the mesoderma. If the staining was not well done, then it was difficult to distinguish the cells; but in specimens colored with hæmatoxyline we can always see cells, with well-defined nuclei, and also intercellular substance. In some specimens where only a very small stripe remained I could find blood tracts running a considerable distance into it. This stripe was always in direct continuation with the mesoderma all around the eye, and the histological elements of both were of precisely the same character, as it is natural to suppose, since they are one and the same tissue. (Remember, this stripe was pushed in behind the lens from the middle germinal layer.) Our own specimens, therefore, lead us to agree with Kölliker, Zernoff, Lieberkühn, Arnold, and W. Müller, when they say that *this tissue always contains cells*, whereas they are in direct opposition to Kessler when he insists to the contrary.

Some authors, such as Kessler, deny the existence of this layer of tissue. According to them the cornea in the beginning is a *perfectly structureless secretion from the ectoderm*, and subsequently derives its cells from the sides by a peculiar process which they call *cell migration*, thereby giving these little lumps of embryonic protoplasm a life and power of motion which we generally allow only to white blood corpuscles. According to them, the tunica, or substantia propria, would be a product of the ectoderm, which has derived its cells from without, or from the mesoderm. Were these statements correct, we should have to deal with a most peculiar mode of development. That the cells of a connective-tissue membrane in an embryonic condition must migrate into it from without, and even into an intercellular substance which has been the product of epithelial elements, were indeed a process so opposed to all the established laws of histogenesis that this of itself should place us on our guard as to accepting such views.*

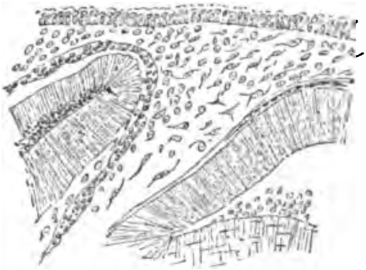

FIG. 13.—A step in advance of Fig. 12. The parts are the same. The corneal cells are in greater numbers, and a small, transparent stripe commences to make its appearance just beneath the ectoderm, the future membrane of Bowman, etc.

The communications of the earlier authors on this portion of the subject are very scant; in fact it does not seem that they appreciated it at all. This is at least the case up to the time of Remak, Kölliker, Babuchin, Ritter, and Hensen. The authors who have written of late—those who have furnished special works on the cornea—are Schenk, Kessler, Manz, J. Arnold, W. Müller, and Lieberkühn. The last-mentioned authors have given us all the material necessary for the discussion of mooted points, so that we will only look into the two prevailing ideas as to the histogenesis of the cornea. Most of them agree that, at least in the mammalia, before the receding of the lens, there is always a layer of tissue containing cells between the primary ocular vesicle and the ectoderm; also that this layer is continuous on both sides with the mesoderm. They also agree that this tissue is pushed in before the lens as it sinks into the secondary ocular vesicle, and envelops it in its whole circumference in a closed sac, and that the layer of tissue which lies between the ectoderma and lens goes to form the connective-tissue portions of the cornea.

* See the author's article on the Development of the Cornea and Anterior Chamber, "Arch. of Ophth.," viii, 1.

Kölliker was the first to point out the existence of this layer of tissue, and he also called attention to the fact that it was pushed in by the lens as it receded from the surface of the head. Zernoff, Lieberkühn, Arnold, W. Müller, and others, confirm his conclusions, and state further that this tissue always contains cells and nuclei in every stage of development. As before remarked, some authors, such as Kessler and others, deny the existence of this layer of tissue, but they probably derive their idea from the fact that the closer the primary ocular vesicle approaches the ectoderm the thinner this layer becomes and the fewer cells it contains. It is really true that at a certain time they are so few that they are hard to demonstrate even with high powers. For instance, in some animals, such as the small mammalia, it becomes so thin that it may easily escape observation, but in the larger ones, such as the embryo of the ox, it always has an appreciable thickness. In the case of the chick, I have seen myself how uncertain the question is, but I believe that W. Müller has been able to demonstrate its presence even there. Nevertheless, in my opinion the calf embryo is the proper subject for this study.

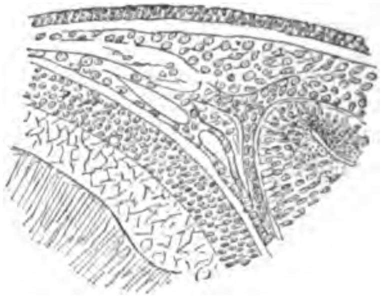

FIG. 14.—The same, with the exception that the zone of cells in the cornea has become very small, the clear stripe of tissue much broader, and the vessels which surround the lens much larger and more numerous, etc.

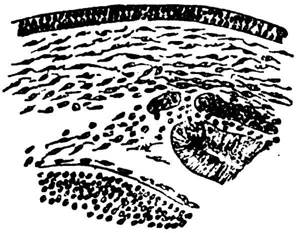

FIG. 15.—Same as the last, but somewhat more advanced. The clear stripe above is not quite broad enough. The few cells which run out beyond the end of the secondary ocular vesicle are the beginning of the iris, etc.

So much for the zone of tissue. In the following I quote from my article in the "Archives of Ophthalmology."

In a later stage of development, or that at which the lens begins to recede (embryos 9–12 mm. long), the zone of tissue between the primary ocular vesicle and ectoderm is pushed in along with it, and, furthermore, it hollows out the primary to the secondary ocular vesicle. At every stage of the receding lens this zone is to be seen as a semi-transparent tissue containing cells. After the lens becomes detached from the ectoderm it closes in and becomes continuous on all sides with the mesoderm, and, in the interior, with the tissue which surrounds the lens. Its appearance is different even in animals of the same age, but more so if the sections are not in the same plane. In those which pass either above or below the middle plane of the eye, the zone between the epithelium and lens is quite thick, and is very rich in round cells and blood-vessels. The nearer the sections come to the axis of the eye, the thinner, of course, becomes this zone, and the fewer cells we find. They are flatter and more spindle-shaped or stellate, and the vessels are fewer in number. By a superficial examination this membrane appears sometimes to be homogeneous, but, by a more careful study, and especially with well-stained specimens, the existence of cells can always be demonstrated. The distribution of the cells is not at all regular. Generally they are fewer in number at the middle and more numerous at the sides. They are also irregularly distributed anteriorly and posteriorly, so much so that they are often more numerous in the middle, and sometimes more so just under the epithelium. A homogeneous zone corresponding to the membrane of Bowman is not to be found at this time. (Compare Fig. 12.)

As the development advances, for instance in embryos from 15–17 mm. long, this tissue becomes thicker and much richer in cells. At this stage I have examined an entire series of preparations well stained both with carmine and hæmatoxyline, and the cells could be very distinctly seen. They are round, sometimes spindle-shaped, and even stellate in form, and have an exceedingly well defined cell-body with round nuclei. At this period commences a peculiar arrangement of the cells, so that immediately under the epithelium they become very few in number, or are entirely wanting, and then the tissue has a more homogeneous appearance. (Compare Fig. 13.) In general, this clear tissue seems to be identical with that which lies behind the lens, and with the mesoderma, and they are all mutually dependent, and directly continuous with each other. Their arrangement is also not essentially different.

The principal object in the above description is to lay stress upon the fact that, immediately after the complete recession of the lens, there appears a tissue between it and the epithelium which always contains cells, in varying numbers and arrangements, and also to demonstrate the presence of blood-vessels in it.

The authors differ somewhat as to the condition of this tissue in the beginning, but I would remark that, from my own investigations, *it is certainly not structureless*, but contains at all times both cells and nuclei, and that it is in no way to be distinguished histologically from that which we find behind the lens and on both sides of it. It is easy to understand Kessler's mistake, since, even in the case of so large an embryo as that of the ox, sometimes the cells are extremely difficult to see, and they may have been much more so in the material which he seems principally to have examined. I must also state that the homogeneous zone under the epithelium described by Kessler has made its appearance in my specimens much later than he states. Nor can I agree with him that this zone belongs to the ectoderm, for in every instance in which the epithelium had been detached in preparation this zone remained in connection with the cornea, and never with the epithelium. Neither its structureless nature nor its more intimate connection with the ectoderm can be conceded. The relation of the cells to the intercellular substance, their presence at every stage of development, and their distribution, are in fact wholly opposed to his view.

As to the question whether that tissue lying between the lens and ectoderm is the commencement of the corneal development or not, it may be said that later the cornea certainly appears in this locality, and is continuously developed from it; but at this time there is no appearance of the peculiar arrangement and stratification which characterize the cornea proper. From the following it will be seen what changes here occur.

For instance, in the very next period of development, or in embryos from 18–20 mm. long, we find the distinguishing characteristic is the inauguration of a lamellar arrangement, while in embryos from 15–17 mm. only a slight homogeneous zone had made its appearance under the epithelium. In those of 18–21 mm. this zone is very plainly to be seen, and has reached a considerable thickness. (See Fig. 14.)

In it cells and nuclei have by this time disappeared. There has also been a great change in the middle layers of the cornea. The cells are more numerous, closer together, and the intercellular substance is much more scant than before. The form of these cells is sometimes circular, sometimes fusiform, or even stellate. In the middle, the cell-zone is always the thinnest, but grows broader toward the sides, presenting a conical figure in section, whose base is at the side or margin of the cornea, and whose apex is in the center.

This appearance gives precisely the condition which Kessler describes as a zone of cells which have *wandered* from the mesoderm on the sides into a homogeneous intercellular substance which has had its origin in the ectoderm. We have already seen that we could not indorse Kessler in his statement that the intercellular substance comes from the ectoderm, because it always and at all times contains cells at no time homogeneous, as he describes; and, further, because it stands in much closer relation to the *substantia propria corneæ* than to the ectoderm; and, finally, because the zone of clear tissue which is above the cell-zone appears much later than he describes, and at a time when the development of the cornea has already begun, and INCREASES instead of *decreases*, as it should if it belonged to the ectoderma, and the cells were wandering into it from the sides. Moreover, in this clear zone just under the epithelium, nuclei and cells are demonstrable at a very early period; later they disappear, and the homogeneous character is produced.

The migration hypothesis of the author we must pass by, as there is no evidence whatever of its existence; the conical figure, described by him, in which the cells are arranged, admits, in my opinion, of a much simpler explanation, if we recall the well-known fact that, after the receding of the lens, the first development of the cornea begins from the sides; and that the further formation goes on in the same direction—that is, from the sides toward the middle. The whole process had made upon me the impression of a continuously developing tissue, and I am convinced that the substantia propria of the cornea is formed from the zone of mesoderm between the lens and ectoderm by an increase in the number of cells and a formation of intercellular substance *in loco.*

The later development and metamorphoses which the substantia propria experiences only confirm these views. (Compare Fig. 16, made from an embryo 24 mm. long.) The cornea, at this stage, has an appreciable thickness, and while in the beginning it is much thinner in the middle, later it reaches about the same thickness throughout. The homogeneous zone under the epithelium shows no great change. The corneal tissue, however, is very much altered, and contains numerous cells, both fusiform and stellate, with round and oval nuclei embedded in thick, finely-granular protoplasm. The intercellular substance now shows a striated appearance, or even traces of lamellation.

What has gone before has been concerning the homogeneous zone which appears just beneath the epithelium and about the substantia propria, but some observations remain to be made as to the origin of the membrane of Descemet, and what is inseparably connected with it, the anterior chamber.

In embryos from 22–24 mm. long, the space between the substantia propria of the cornea and the capsule of the lens is filled by a transparent vascular tissue, which contains round, spindle-shaped, and star-shaped cells, embedded in a homogeneous intercellular substance. In fact, it is perfectly identical with the tissue which occupied this position immediately after this receding of the lens into the cavity of the secondary ocular vesicle. Therefore, while the middle layers have been changed into the characteristic appearance of the substantia propria, the inner layer preserves its structure. Both portions of this tissue are still very closely connected, and gradually become completely blended. (Compare Fig. 4.) Later, as in embryos 25–30 mm. long, a change begins in this posterior layer of the substantia propria, characterized by the appearance of a narrow homogeneous stripe next to the cornea proper. In it there are no cells nor nuclei. In embryos of 22 mm. this stripe is present, although exceedingly narrow, but it gradually becomes broader until it finally forms the membrane of Descemet. Whereas this membrane makes its appearance much later than the anterior homogeneous layer (the membrane of Bowman), nevertheless, they are both developed precisely in the same manner.

Simultaneously with these processes, changes also occur in the layer next to the inner homogeneous membrane (the future membrane of Descemet).

The tissue becomes less dense, and in some places it is interrupted so that small holes can be seen, while the cells are arranged upon the walls of these interspaces. The tissue just in front of the lens forms a membrane, the vessels of which are immediately continuous with those running laterally and behind the lens.

In embryos of from 25–30 mm. in length we find between the cornea and the vascular membrane in front of the lens a network of tissue whose meshes are lined with flat cells. The same arrangement is met with on the posterior surface of the membrane of Descemet, where the meshes are not inserted—that is, the membrane is here lined with flat cells. In the further development the holes become fewer and larger, and the cell-lining of the membrane of Descemet more complete. At a certain period, finally, we meet with only a few isolated meshes, covered with cells. Toward the corneal margin the network is finer, but still covered with cells, the future "ligamentum pectinatum." The place at which the development of this network begins is sometimes in the middle, sometimes on the sides.

The anterior chamber is, therefore, formed by a separation of the cornea from tissue which lies immediately below it, and with which it stood before in perfect continuity.

The endothelium of Descemet, as well as the cellular coverings of the meshes of the ligamentum pectinatum, owes its existence to this peculiar process, and, accordingly, does not migrate into position from without, as Kessler insists, but is formed *in loco.*

The above observations agree with those of Zernoff, Lieberkühn, Arnold, and W. Müller.

Kessler assumes that the endothelium of Descemet is produced by a wandering in of cells from the sides, along the posterior surface of the cornea. This view is contradicted by the above-described method of development of the anterior chamber. Besides, I have often found that the endothelium appears earlier in the middle than it does at the sides, and progresses as the separation takes place. This condition of meshes, lined with cells and stretched through the anterior chamber, and the development of the ligamentum pectinatum connected with it, are wholly unexplained by the views of Kessler, whereas by the method just described everything is remarkably clear.

Finally, mention must be made of the possible persistence of these meshes, similar to what we sometimes find in a membrana pupillaris perseverans. It would also throw some light on congenital synecheæ, and declare them to be simply anomalies in the fœtal development; whereas, at present, they can only be accounted for by a supposition of an intra-uterine inflammation.

To put the development of the cornea briefly, we have: After the lens sinks into the secondary ocular vesicle, the mesoderm comes in from all sides and takes up the previous position of the tissue which the lens carried in front of it. The tissue of the mesoderm comes in in bulk, and, therefore, the cornea has both cells and intercellular substance from the very beginning. When first pushed in, the tissue has its cells indiscriminately scattered about through it, just as they are in the mesoderm, but subsequently they disappear in a zone just under the epithelium, and a clear membrane is produced, which is afterward transformed into the membrane of Bowman. The same takes place below, and the membrane of Descemet results.

The epithelium of the cornea is from the original ectoderm, the endothelium, formed from the cells of the mesoderm which are situated in this locality. I will here remark that I consider the tendency to speak of the cells on the membrane of Descemet as epithelium to be incorrect, since the term ignores their method of formation.

The peculiar process used by Nature in the formation of the anterior chamber (I refer to the production of holes and meshes) is not unique. In the formation of the joints and some of the cavities in the abdomen we meet with the same device.

PROLONGED GESTATION.*

By LOUIS A. RODENSTEIN, M. D.

Case I.—In 1863 I was summoned to attend the wife of a German gardener living in Seventy-sixth Street. I found her in severe labor, which had already lasted twenty-four hours. I was informed that nine months before, when she was three months pregnant, the late Dr. Seuff was engaged to attend her, but, the doctor meanwhile having died, the case came into my hands. I attempted to deliver her with the forceps, but, not succeeding, nothing remained save craniotomy, which I performed. This woman menstruated regularly before conception, and from her last catamenial period to her confinement there was a full year, according to her own computation. Her own explanation of this abnormally long gestation was the shock she experienced when informed of the death of Dr. Seuff, which occurred about the time when she should naturally have been confined.

Case II.—Mrs. A. R. ceased to menstruate August 15, 1875; felt life at the proper time, and should have been confined May 15, 1876, but was not delivered until July 7, 1876, carrying the child ten months and twenty-one days. This case made a very distinct impression on my mind, as I was a number of times asked to examine the patient during this extended period of gestation, to determine whether what she supposed was a child was not really a tumor.

Case III.—Mrs. A. R., the same lady mentioned in Case II, was confined for the third time November 4, 1881, and was delivered of a well-developed male child weighing eleven pounds. The fontanelle seemed to be better closed than is usual in the new-born. Mrs. R. ceased to menstruate on the 1st of December, 1880; felt life about April 15th; expected confinement September 1, 1881. On that day I was called, as she had some slight symptoms of approaching labor. I found the os well contracted; the pains were feeble, and soon disappeared. I was called again November 4th, and found her in labor, which had begun twenty-four hours before. I began treatment by using ergot, but with little or no effect, and completed labor by instrumental interference. Gestation lasted eleven months and four days. The facts, as related by the woman, were as follows: Coition took place the very day menstruation ceased, and every day thereafter for five days. On December 7th the husband left home and was absent six weeks. Before his return gestation was fully established.

Case IV.—This case occurred in the practice of my brother, the late Dr. C. F. Rodenstein. Mrs. N. N. stated that she became pregnant by a single coitus on the night of the 9th of January, 1875, and she was not delivered until December 15th, carrying the child eleven months and fifteen days. She had all the first symptoms of pregnancy; cessation of menstruation and morning sickness began in the first month and continued for several months.

The number of cases cited upon undoubted authority by every writer on obstetrics, and the cases constantly reported as occurring under the personal observation of general practitioners, go to show that prolonged gestation is not a myth, and especially that it should not be explained away by questioning the virtue of the mother. How long the duration of the period of gestation can extend beyond the normal time is not yet determined, perhaps can not be determined, but that it may extend over two months is apparently settled. The same principle is involved, whether the uterus tolerates the presence of the child three days or one hundred and forty-five days (Professor Meigs's "Report") after the natural term of gestation has expired. I can not but believe that after the uterus has performed its physiological function of gestation for the natural term (two hundred and seventy-five or two hundred and eighty days) it rests from the work of gestation proper. Why does it not then exercise the function of expulsion? That question I will not attempt to answer, but I believe that after gestation has performed its proper and peculiar work the growth of the child is complete, and it thereafter lies dormant in the womb. Otherwise the child would grow to huge size, and its delivery in the natural way would be impossible; whereas in the cases cited the size of the child at the expiration of the period of prolonged gestation was normal.

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* Read before the New York Obstetrical Society December 20, 1881.

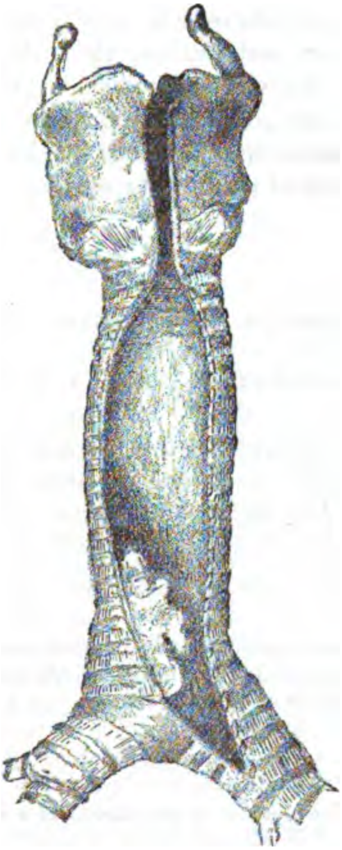
A CASE OF SUFFOCATION FROM CURDLED MILK.

By STANLEY P. WARREN, M. D.,
PORTLAND, ME.

A GENTLEMAN summoned me at 6 P. M. to his child, which he said was choking. I found a little girl, about two years old, with the subjective symptoms of membranous laryngitis. The respiration was stridulous, expiration being slightly more forcible than inspiration, the voice was husky, and the cough, which I heard only once or twice, was hoarse and brazen. Auscultation showed nothing unusual in the lungs except a few fine mucous râles in the left apex. The temperature was normal, but the pulse was rapid, though, from the child's restlessness, it was not counted. She was a plump, healthy-looking baby, and had been playing around the house all day until about five o'clock, when the choking attack occurred, although she had been wheezing for two days previously.

A somewhat indefinite history of preceding strumous disease was elicited, and part of the right radius had been resected for necrosis some months before, but there had been no medical attendance for two weeks.

The diagnosis of membranous croup was made, and a doubtful prognosis was given. Turpeth mineral was administered at once, and vomiting of partly digested food quickly followed, but the dyspnœa was not relieved. Directions were given to procure some lime, that it might be ready for me to use at my second visit. Having just had the misfortune to lose two cases of true croup, in which medicine seemed to be useless, I called again in two hours, prepared to operate, if permission could be obtained, or if the symptoms were urgent. The child was in about the same condition. It had vomited several times, and the respiration was possibly a little more labored. I had an adult sister hold the little one in her lap, and covered them both with a sheet, under which the steam from the slaking lime was confined. Air entered freely under the edges of the covering, and, though at first frightened somewhat by the unusual condition of things, the child breathed more easily for a few moments. Almost immediately after emerging from the sheet it sprang up, grasped its throat, was horribly convulsed for breath, and in a few seconds respiration was nearly suspended. Little by little it began to breathe very feebly again, but was moribund. It was noticed by several that expiration was more difficult than inspiration. A male catheter, passed through the mouth into the larynx, showed the trachea to be patent, and no obstruction could be felt about the epiglottis. Chloroform was procured to relieve a possible spasm of the larynx or bronchi, but at the second inhalation the child died.



At the autopsy, which was made the next day, the trachea was opened at the usual place of operation and found to be free from membrane or inflammation. The left lung was greatly congested, and just floated in water; the right was normal, though it contained little air. Upon removing the trachea and its main branches *en masse*, a foreign body was found firmly lodged in the right bronchus.

It was evidently a lump of hard curdled milk, three quarters of an inch long, and just large enough to slip up and down in the trachea. The smaller bronchi leading to the right upper lobe were also plugged with the same material.

It appeared probable that the milk had been regurgitated from the stomach, and then insufflated, some days before; for after the autopsy the parents remembered that the child had strangled and had a severe coughing fit at supper three days before it died. It made no complaint afterward about its throat, and the croupal breathing was so slight that it was hardly noticed until the afternoon of the day I was called. There was hardly any cough, and in fact the family had no suspicions that there was any foreign body in the windpipe.

It was reasoned that the milk passed first into the left bronchus, and soon caused passive congestion of that entire lung. It was dislodged by the vomiting, when in the fright from the slaking lime it was again insufflated, but this time into the right bronchus. This was occluded so entirely that no air could enter the lung on that side, and so little air could be received into the other that death was immediate from deficient aëration.

The case is interesting, not only from its rarity, but also in view of the question whether tracheotomy was advisable. The physician called in consultation thought the suffocation was caused by spasm of the larynx or lungs, rather than by an obstructing membrane, and advised against operating. Had the plug been accurately located, it is questionable whether one would have been justified in passing any instrument two inches down the small trachea in constant motion, with the more than probable result of thrusting it through the tube into important structures about it. Again, it is hardly probable that there was enough residual air in the obstructed lung to have voluntarily expelled the plug when it was so firmly placed.

Of course, it is easy to speculate as to treatment when the trachea, with the foreign body *in situ*, is on the table before one, but doubts multiply when only subjective symptoms can be considered.

CASE OF EXTRA-UTERINE PREGNANCY.

By J. M. HEARD, M. D.,
WEST POINT, MISS.

Eliza Perry, colored, aged about 18 or 19, single, became pregnant in the summer of 1874. In December she was taken in labor, as she supposed. A midwife remained with her a day or so, and then, as she became quiet, went home. In February, 1875, she was again taken in the same way, and after several days' delay, with a number of midwives, she again became quiet. Soon after this her menses, having been absent for nearly a year, returned with perfect regularity until the summer of 1877. In the mean time she went regularly to work in the field, with no apparent trouble (except her size—that of a woman at full term), all of 1875 and 1876, and until the summer of 1877. In April, 1877, a small opening formed in the left side and discharged a transparent liquid, with no odor (liquor amnii, I suppose), copiously for about two months. In August it commenced to discharge pus, and in the fall became so offensive that her own father could not stand it, and went off and left the family in a very destitute situation.

The foregoing was the statement of her mother, who was with her all the time constantly: On the first day of January, 1878, a humane friend of mine, Mr. O. A. Gibson, in passing her cabin, heard her moaning, and immediately wrote me a note requesting me to come, as an act of humanity, and see if I could do anything for her, as she was in a terrible condition. I found her apparently in a dying condition, with no pulse. In the mean time Mr. G.'s good wife had sent her some rich nutritious broth and stimulants, which were given very freely. There was no difficulty about the diagnosis, as there was a small opening in the left side, from which protruded a small bone and some hair.

It was nearly sundown, and three miles from town, and I knew that I could get no assistance that night; so, as soon as she was under the influence of stimulants, I immediately proceeded to operate, with no other instruments than a curved bistoury, a pair of bullet forceps, an iron spoon, and a water-dipper. I took out a large bucketful of decomposed flesh, hair, bones, and pus. The bones seemed to be those of a child at full term, and I think I have preserved every one of them. I closed the opening with silver pins, leaving a space large enough for me to introduce my finger. As I became very sick at the stench, I had to hurry in the operation. After placing a good compress on, I bandaged her well, and on the second day I went back, introduced my finger, and extracted several more bones firmly imbedded in the bottom of the sac. I then closed the opening and bandaged again. With the kind attentions of Mr. and Mrs. G. she made a rapid recovery, and is now one of the stoutest negro women of the country. She has been married several years, but has had no children.

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Editorials.

TWO NOTABLE ADDRESSES.

Formal addresses by members of our profession are not often characterized by more than an ephemeral interest, and it is seldom that they appeal with any considerable force to a larger audience than the assemblages before which they are delivered. Readers in general seem to be pretty much of this opinion ; hence such productions are apt to be passed over with little or no attempt to get at what there may be in them. Art being so long and life so short, that the reader is justified in this course, goes without saying. Within the past few months, however, two remarkable addresses have been published which ought to escape such a fate, for they deal with matters that lie at the very root of progress in medicine. We refer to Dr. Jacobi's picture of the life and character of Rudolf Virchow, and to Mr. Sampson Gamgee's logical and manly protest against the anti-vivisection law that now weighs like an incubus upon the advance of experimental medicine in England.

At the opening of the present session of the College of Physicians and Surgeons Dr. Jacobi gave the young men then assembled for study at that institution—many of them just entering upon the task, their minds, therefore, so many *tabulæ rasæ*—a lesson that ought to illumine every step in their career. It was peculiarly fitting that at the outset a model should be held up to them so vigorously. Perhaps, indeed, such was the most desirable occasion for a discourse of the sort, for we can not say that in that array of young men there was not some one possessed of the natural gifts that, under the stimulus thus afforded, may give us still another epoch-maker.

But, much as those young men are to be congratulated upon the privilege of listening to the masterly presentment made by Dr. Jacobi, scarcely less ought we all to be thankful that it has been granted us to read it. Were it the mere portrayal of a career, even so remarkable a career as Virchow's, although we might still admire its beauty of construction, it would call for no special mention. As it is, however, it is a mirror of the struggles that have freed medicine from bondage, and a beacon to warn the investigator against future deviations from the path of progress.

Since the first publication of Mr. Gamgee's address * it has been somewhat amplified. On comparing the two forms, we miss in the revised version some very forcible passages, but much has been added, and the author informs us that the omissions were for the purpose of avoiding undue bulkiness. We trust that both editions will be read largely, for there is not a sentence in either but arrays fact or plain logical inference in protest against the absurd and humiliating attitude of the law-making power in England on the question of vivisection. Physiological research naturally comes first to mind in the consideration of this matter, and Mr. Gamgee gracefully concedes the propriety of looking upon it as having been the most injured by the anti-vivisection clamor and the legislative action consequent thereupon. His particular purpose, however, is that of showing the great extent to which modern surgery owes its triumphs to experiments done upon living animals. Doubtless we have all so looked at the matter in a general way, but there must be few, if any, who can read Mr. Gamgee's demonstration, showing how many are the items in the debt that surgery owes to vivisection, without a feeling of surprise at the meagerness of their former realization of the fact.

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* The Influence of Vivisection on Human Surgery. 2d ed. London: J. & A. Churchill, 1882.

The long line of established operations for the saving of life, shown conclusively not to have been practicable, or even warrantable, except after experiments upon the lower animals, ought to open the British legislator's eyes to the fact that he has done his best to perpetuate human suffering and shorten human lives in the interest of a sentimentalism that cranes at no sacrifice of animal life to minister to personal adornment, but interposes obstacles involving days of delay in the administration of justice and additional burdens to tax-payers when permission is sought to inject beneath a mouse's skin a few drops of liquid from a dead man's stomach, to ascertain if it contains aconitine. We will not attempt to summarize these instances, but will merely quote the following spirited suggestion: "If to-morrow," says Mr. Gamgee, "I saw a case the parallel of Czerny's, and resolved to excise a man's pylorus, the poor creature, threatened with otherwise certain death, might grasp at the remotest chance of life. If I operated, and he died in a few hours, death would be looked upon as a natural result after the great risk incurred, and no one would say anything, assuming, of course, that I had used all reasonable care and diligence. But if, before operating on that man, I resolved to gain experience on Czerny's 'zweireihige Naht' (double-row suture), and put a brute animal to sleep, to try it on his pylorus, for perfection and safety in operating on the man, I should be liable to be brought up at a police court under a charge of cruelty to animals."

We must not omit Mr. Gamgee's sturdy resolve as to what he would do under the circumstances: "I should not hesitate an instant as to my course of action. I should sacrifice the brute in the interests of my patient, and leave the Act of Parliament to its official custodians."

THE NEW YORK SPECIALIST.

Nearly all of our American contemporaries have had their equanimity upset by that section of our new State code of ethics which allows of consultations with all legally qualified practitioners, and a good deal of buncombe has been indulged in over the matter. One publication goes so far as to state that all the journals are unanimous in condemning the action of the State society, thereby ignoring the "Medical Record" and this journal. Some of these journals are dabbling in divination, and hold up to our gaze the hidden reasons which, they aver, prompted the committee to draft the code and the society to adopt it. Foremost among the foul motives thus conjured up is an alleged desire on the part of New York specialists to break down the barriers that are supposed to have prevented them from coming into possession of certain consultation fees that the homœopathists might throw into their hands.

We have seen something of the New York specialist, and we must confess that we have never detected in him those base qualities that would lead him to plot against the interest of the profession at large for his own sordid purposes. Our virtuous contemporaries have exposed his true character, as they seem to think, and, as a matter of course, they will have nothing more to do with so vile a creature. In the past, much of the matter they have furnished to their readers has been of his production, and that portion has been, in the estimation of some of us, of very good quality. Granting, however, that the New York specialist should be so simple as to go on furnishing pabulum to those who are doing their best to prove him a knave, they can not, consistently with their high regard for ethics, draw longer from such a source.

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Special Articles.

THE PHYSIOLOGY OF ACCOMMODATION.*

By WILLIAM C. AYRES, M. D.

(*Concluded from March Number.*)

THE GENERAL ETIOLOGY OF HYPERMETROPIA AND MYOPIA.—It has long been known that the size and structure of the ciliary muscle bear a definite relation to the condition of refraction of the eye. Loring writes:

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* The reader is requested to make the following corrections in that part of Dr. Ayres's article that appeared in the March number: p. 275, ninth line from top, for "anterior" read *posterior;* tenth line, for "posterior" read *anterior.*—EDITOR.

"In myopic eyes the circular fibers are found wanting;* so that, according to Iwanoff, the muscle of a myope is not simply *atrophied*, but only the circular bundles are affected by the *atrophy*, while the longitudinal ones, on the contrary, are hypertrophied; the reverse taking place, however, in the hyperopic eye, since here we find also only one portion of the muscle hypertrophied—that containing the circular bundles. As the circular fibers were wanting," the report continues, "in highly myopic eyes (which had no demand for active accommodative efforts), while, on the other hand, they were increased to a great amount in hyperopic eyes, it was reasoned that these fibers exerted a predominating influence in active accommodation. The direction of traction of the two sets of fibers as given by F. E. Schultze, and subsequently by Iwanoff, was, that the direction of traction of the circular fibers was, in the main, forward and inward toward the axis of the eye, while that of the longitudinal fibers was directly forward, meriting thus the appellation of a direct *tensor* choroideæ. This agreed with the views of Helmholtz and most other physiologists, who have expressed the opinion that traction of the choroid, and consequently relaxation of the zonula, forms one of the principal elements for the production of active accommodation. As the circular fibers of the hyperopic eye were *hypertrophied* at the expense of the longitudinal, the result of the combined action of the muscle was only directed to a small degree from behind forward, but principally from without inward, while, on the other hand, the ciliary muscle of a myope must, by its contraction, exercise a considerably greater tension on the choroid than the muscle of the hyperope, so that, in the true sense of the word, it might be denominated a tensor choroideæ. As a tensor choroideæ, the muscle must exercise an influence on its two fixed points, which were, respectively, its insertion at Schlemm's canal and its insertion at the optic-nerve entrance.

"To account for the hypertrophy of the longitudinal fibers at the expense of the circular, in the myopic eye, Iwanoff reasoned as follows: First, he assumed, since the circular fibers were found among animals (according to his investigations, only in the pig and ape), that they were an addendum in the higher animals only for the purpose of facilitating the act of accommodation. In case of muscular disease (Iwanoff), atrophy will more readily occur in these accessory portions. This atrophy, having once begun, will develop itself more and more, since it is transmitted in an hereditary manner, together with an elongated visual axis, till, under the influence of this condition, the muscle changes itself more and more into a tensor choroideæ, which now on its side calls forth a pathological elongation of the axis. With the progress of civilization new conditions of life appear. From such an eye, which has already become typical, an increased demand on the act of accommodation will be required, and the longitudinal fibers, the only ones now remaining, will become hypertrophied, in order to fulfill these require ments. The hypertrophied tensor choroideæ calls forth, then, an entire series of new pathological changes in the posterior part of the choroid, through which the progressive development of myopia is caused." *

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* "Rep. of the Fifth Internat. Ophth. Congr.," p. 245.

Loring goes on to remark: "However ingenious such reasoning as this may appear, it leads to but one conclusion, and that is the apparent anomaly of the hypertrophy of a set of fibers to satisfy the demands of an enforced accommodation in an eye which does not require or use it, and the first natural instigation of which would be to suppress what it had. The only possible cause, then, for the hypertrophy of these longitudinal fibers would be for the purpose of negative accommodation, which conclusion is, to use the words of the author, the *reductio ad absurdum*, since a myope can not carry out his far point by any accommodative strain. It would, moreover, certainly appear very far-fetched to attribute this hypertrophy to an effort on the part of the longitudinal fibers to hold in check active accommodative efforts produced by the circular fibers, since in a myopic eye no such efforts are made or needed. From the very formation of the globe, no accommodation at all would be used in the very eyes in which this hypertrophy of the fibers was found most developed—that is, in such eyes as were examined by Iwanoff, all of which were of an excessive degree, the shortest being 28 and the longest 34 mm., m. being $\frac{1}{3.5}$ or greater; and all the more would this be true if we accept, with the author, that this condition of the muscular fibers is to be found by preference in such eyes as have always been highly myopic."

Loring further observes that it would certainly appear illogical to attribute the hypertrophy of the longitudinal fibers in a myopic eye to any action on the part of accommodation. He seeks to explain the whole thing by the mechanical effect of distension of the membranes of the eye, which in some cases, he says, is enormous (as where progressive myopia is developed rapidly and to a high degree). Thus, if the posterior part of the eye would yield, the insertion of the muscles at its choroideal end would be drawn back, and certain changes would thus be produced in the shape of the muscle itself. He maintains that when the muscle is pulled upon, and dislocated backward, the circular fibers would be put upon the stretch and present the same condition under the microscope as the longitudinal (as far as direction is concerned). He holds that in the hypermetropic eye the reverse would occur. "As the eye itself is, as a whole, an undeveloped eye," says Loring, "the muscle as a whole would be smaller, and especially would it be shorter along the sclera. Moreover, as the demands on the accommodation are increased (from the very structure of the eye), the muscle, from constant exercise, would have a tendency to increase in volume over what it was originally, and be pushed forward. As the sclera in these eyes does not yield, the muscle would become more compact, and many fibers, especially the oblique and radial, would from this fact assume a direction while growing which they would not have in the normal eye. The network would be pressed together—that is, in an antero-posterior sense. From this it would result that there would be apparently a greater number of circular fibers on section than in a normal eye." From such considerations he would conclude that the difference in shape and structure of the muscle, as regards refraction, was rather due to mechanical conditions, such as traction and condensation, than to difference of function of the component parts of the muscle.

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* "Arch. of Ophth.," xv, 3, p. 297.

It is a question whether Loring's criticism of Iwanoff's "ingenious argument" is entirely correct, or even just, in some particulars. In others it is correct, since it is hardly probable that an eye would first have to go through a retrograde metamorphosis in order to arrive at a point from which it could *start* to transform itself into a normal eye. But, on the other hand, it is hardly correct to assume, as he does, that there is no such thing as an active accommodation in the higher degrees of myopia, and, therefore, that the ciliary muscle could not become hypertrophied from that cause. Even in the highest degrees, where such a condition is the result of heredity, we must assume that the ultimate degree resulted from a gradual increase. At the same time, the growth of the muscle could certainly have kept pace with it and assumed its natural shape, or at least one which we are in the habit of associating with myopia. If, on the other hand, we consider that there are cases which develop into myopia during one lifetime, why could not a constant exercise of the radial fibers in accommodation bring about the size and shape of the ciliary muscle within this one lifetime also?

It may be further questioned whether or not myopes have to use active accommodation, and for the reason that the very position in which they must place an object to see it distinctly requires a much greater change in the focal plane of the retina than has to be produced when the object is at a distance. This is by virtue of the law of conjugate foci.

If the eye be hypermetropic, its condition requires that it should have a larger muscle, from obvious reasons. When the eye is emmetropic it has the greatest practical range of accommodation; and the reason why it does not develop a greater muscle than we always find in it is probably the fact that it does not inspect objects very close, on account of incapacity dependent on the length of its axis. That it does not need a larger muscle to see at a distance is due to the fact that large variations in the distance between far objects produce a very small modification in the planes of their conjugate foci, and, consequently, a very small change in the plane of the image would be sufficient, and could be induced by a comparatively small muscular effort.

When the eye is myopic, it is true that the retina is placed farther from the cornea, or its optic axis is certainly longer, which requires that the object be brought closer to the eye; but now the slightest deviation in the position of the object causes a much greater change in the position of the image. In fact, when we bring the object to the anterior principal focus of the combined system, which is about 17 mm. in front of the eye, the rays of light going from it into the eye run parallel to the optical axis in the vitreous, or they have their focus at infinity. Thus we see that, though the range of accommodation of a myopic eye is small, there must be in that small range a decidedly active accommodation required, and the muscular structure would demand a greater nicety of architectural arrangement than is the case in any other condition of refraction. The length of the optic axis would relieve it of much of its work, but it is certainly a question whether it relieves it of all of it.

By what has gone before as to the myodynamics of the ciliary muscle of a myopic eye, we can probably demonstrate that the muscle is pre-eminently a weak one, and on account of its position or its *line of direction of force*. It is also required to remain a weak one on account of the length of its optic axis, but at the same time a certain delicacy of structure and power is required, and this is supplied by radial fibers, because circular ones would prove too powerful for the working of the eye to its true advantage. May it not be that, since the eye is required to operate with *only radial fibers*, these fibers would become hypertrophied, and at the expense of the circular? The circular fibers atrophy (if they ever existed) because the eye must studiously avoid their use; for, were they (being strong from position) to contract, they would place the image in front of the retinal plane, and then produce dispersion circles instead of the distinct images which the eye requires.

That a myopic eye has good power of accommodation I would consider conclusively demonstrated by the fact that, when the myopia is corrected by a proper adjustment of glasses, the eye may almost be put into the condition of emmetropia, when its accommodation would certainly be called into play. I know of a case in which the degree of myopia is as high as 14–15 dioptrics, and without glasses the patient is absolutely helpless; but when he has his glasses he enjoys good sight, etc. Moreover, although possessed of an unusually high degree of myopia, he can accommodate, and uses this power to a great nicety when without his glasses, but, of course, within a very limited range.

As to Loring's condensation hypothesis, it may be an important factor in determining the ultimate shape of the muscle in the various conditions of myopia, but we can hardly believe that it is the only factor, since in emmetropic eyes, where the sphincter set is sometimes very small, should we not expect to find the same power at work to produce the greater lengthening of the radial muscle? However, this is not the case. On the contrary, it can hardly be maintained that in hypermetropic eyes there is simply a separation of the sphincter fibers into a kind of network, since we actually find that in these eyes there are sometimes as many or even more bundles of fibers than of single fibers in emmetropia. That there is an absolute increase in the one system and an apparent decrease in the other, can not be questioned; therefore, I would consider (as above stated) that the mechanical factor of rarefaction or condensation, though it may be an important one, is not the only one.

Iwanoff states that the only animals in which the addendum of a sphincter is found are the pig, the ape, and man; but it is also a matter of fact that the eyes of all animals are more or less hypermetropic. We do not find that they present the typical condition of myopic muscular structure which they would do were traction the only factor in determining the shapes of their ciliary muscular systems. It may be argued that these animals have not a sufficient amount of traction to produce the required shape, but, at the same time, we may add that every accommodative effort on their part would tend to produce it, and, where such a factor is constantly at work, hereditary tendencies would certainly take cognizance of its presence. It may also be said that these eyes, being hypermetropic, would naturally lead to the development of a sphincter. This is not probable, however, since these eyes can never have binocular vision, or have it, at least, to a very limited degree; they are never called upon, for that reason, to use much accommodative effort, and, therefore, they do not take on the additional muscular arrangement which close vision would certainly require in them.

In the case of hypermetropia, I consider the following facts of great importance: viz., that in all other animals except those mentioned by Iwanoff (the pig, the ape, and man) we find a condition of hypermetropia of a greater or less degree, while at the same time we do not find a distinct set of sphincter-muscle fibers. Notice that these animals have no binocular vision, from the position of the eyes in the head. We may conclude, therefore, that the condition of hypermetropia and the existence of the sphincter are not absolutely dependent upon one another; that is, they are not in the relation of cause and effect in themselves. When we find, however, that hypermetropia is coupled with binocular fixation, and a greater demand is made on active accommodation by the circumstances of a higher order of life, we find this set of muscle fibers appearing with a certainty which is almost absolute.

It therefore seems that we are forced to consider the development of the muscle of Müller as absolutely dependent upon the condition of hypermetropia, *combined with the increased requirements of civilization and the extraordinary circumstances under which the eye labors by virtue of education.**

As already suggested, may we not find a cause for the increased development of the radial fibers in myopia in the fact that, these eyes having no sphincters (or having lost them by disuse if they ever had them), they always inspect objects close to the eye, yet, nevertheless, require a delicate and capable muscle to work their ciliary apparatus? An active accommodation, though it be within a small range, would bring about consequent hypertrophy of the radial fibers. The explanation why they do not develop circular fibers may be found in the fact that such a system would be too strong for the eye, and, consequently, such a structure is not resorted to by Nature.

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* I do not mean to say by this that a hog has any extraordinary civilization which would demand of Nature the same privilege which she grants to man. We must probably consider this a compliment to Müller, since there is no apparent reason why these ciliary muscles should be armed with sphincters.

I would conclude by saying that the positive knowledge we have as to the physiology of the ciliary muscle is: First, that it is a *true muscle* controlled by the oculo-motorius nerve; secondly, that, by its contraction, *it pulls the choroid forward*, thereby relaxing the suspensory ligament (experiment of Hensen and Völkers); and, as this ligament is relaxed, the lens, being elastic, bulges out its anterior surface (Langenbeck and Helmholtz), and this accomplishes accommodation; thirdly, that there are two sets of systems of muscle fibers—the one having a circular or sphincter-like arrangement (Müller), the other being a radial muscle (Brücke); fourthly, that these two sets, when they contract, tend to produce the same effect, and their anatomical structure, coupled with the fact that they are controlled by the same nerve, forbids us to consider them as antagonistic; fifthly, that the probable antagonist of the ciliary muscle is the elastic tissue in the choroid; sixthly, that we are ignorant of the embryonic relations which lead to the various conditions of hypermetropia, myopia, etc. I would add, as probably true, that the various conditions of the ciliary muscle in hypermetropia and myopia are the result of heredity and education. I would base these conclusions upon the fact that, of all animals possessed of hypermetropia, none of them exhibit a sphincter unless the anomaly of refraction is accompanied by habits peculiar to the higher order of life, etc. The condensation and rarefaction theory of Loring may possibly be a cause, but it is not the only one.

FURTHER SUGGESTIONS AS TO PATHOLOGY.—It is a well-known fact that in hypermetropes, and especially in those who squint, it is next to impossible to determine their exact refraction with the ophthalmoscope. Under such circumstances oculists are in the habit of giving atropia or homatropia, for the purpose of paralyzing this muscle of accommodation. It sometimes happens that (when we have given atropine and tested the refraction to the best of our ability, and when, apparently, the proper glasses are prescribed) the patients will not wear them after the effect of the atropine has passed away. They say that they can not see with them. Now, as it is only a matter of practice, combined with a little skill, to determine refraction with the ophthalmoscope almost to a certainty, is it not probable that the reason why we fail to hit the exact number under atropine in objective determination lies in the peculiar physiological action of atropia; in that such reagents bring about a kind of artificial hypermetropia? We have all seen that in complete paralysis of the third nerve (oculo-motorius) the pupils are dilated only to a moderate degree; never *ad maximum*. In such cases (after diphtheria, etc.) it is fair to suppose that the ciliary muscle is paralyzed, or that accommodation is suspended.

If we drop a weak solution of atropia into such eyes, or irritate the sympathetic with electricity, the pupils will surely dilate much wider; in other words, the drug must have a double action—one in paralyzing the third nerve, and a second in irritating the sympathetic. Of course, there is no reason to believe that the sympathetic controls any muscle fibers in the eye beyond those belonging to the walls of the blood-vessels. On the other hand, may not this action be sufficient to bring about the amount of artificial hypermetropia produced by the use of atropine or homatropine? Since the drug acts very violently on the vessels of the iris, and produces a condition far from normal, why may it not do the same thing for those in the ciliary body itself, under which action the whole ciliary system would be rendered decidedly more rigid than a voluntary relaxation, or even a simple paralysis, of the ciliary muscle would induce? If the blood-vessels of the choroid should feel the effect of the drug also, they would combine to produce the same effect by pulling the choroid backward.

I have tested the refraction of my own eyes frequently, and also had them tested by experts, with the ophthalmoscope, and always with the same result—viz., *rigid emmetropia;* but, nevertheless, when I use atropine it always makes me slightly hypermetropic, and even to such a degree that I can not see distinctly in the distance. This I have explained by the above-mentioned fact—viz., that the atropine, possessing the property of irritating the sympathetic nerves, caused the vessels in my iris, ciliary body, and choroid, to contract, and, consequently, to pull more on the suspensory ligament than they should, thereby producing an artificial hypermetropia which I do not possess unless under the influence of atropine.

Atropia has a very decided action on the sixth nerve, but by no means so great a one as is sometimes supposed; and a very nice experiment to show this is one which I have often done. Remove a portion of a rabbit's skull, and gently push back the anterior part of the cerebrum until the oculo-motorius comes into view; cut it, so that all power of accommodation is gone, and the pupil will dilate to a moderate degree, but only after the direct irritation of cutting, etc., has subsided. This I have always noted as the *first degree* of dilatation. Now put atropine into the eye, and, after a time, the pupil will dilate much more, thereby showing that it irritated the sympathetic. This I have called the *second degree.* Prepare the neck so as to cut down upon the sympathetic, tie a thread around it, and divide the nerve between the body and the thread. Now irritate the end (which you have fast with the thread) with electricity, and the pupil will dilate still further than the atropine had been able to make it (I use a two-per-cent. solution). This I have called the *third degree* of dilatation.

Not having the idea of a possible artificial hypermetropia in mind at the time, I did not determine the refraction after division of the oculo-motorius, and again after using atropine; so that I can not say whether such an artificial hypermetropia was developed or not, but the probabilities are strongly in favor of the affirmative. I will, at some future time, do the experiment again, however, and, if the results are sufficiently evident, will publish the facts.

Of course, the tendency toward an artificial hypermetropia must be a constant occurrence after instillations of atropia (or, if the eye be myopic, it should neutralize some of its myopia), but we can also imagine that in some cases the structure of the ciliary muscle may be such as to render the result inappreciable. This would probably be a larger development of the sphincter set, or an unusual size of both sets of fibers, or such an arrangement that the muscle could not be pulled upon by the contraction of the walls of the blood-vessels. At all events, we may say that the probable reason why atropine produces an artificial hypermetropia in some cases lies in the fact that it has a double action: the one in paralyzing the muscle of accommodation, a second (to us an important one) in irritating the sympathetic. If it acted only in the first way, we could determine, with absolute certainty, the refractions of an eye with the ophthalmoscope, but its second irritating property sometimes (if not always) brings about an artificial hypermetropia. Is it not this artificial hypermetropia which we determine, and which sometimes leads us into error in giving glasses to the patient?

It would be next to absurd to suppose that there could be such a condition as negative accommodation brought about in the eye by its own ciliary efforts; but, if the views here taken are correct, the action of atropine might produce a state of affairs which could be likened to negative accommodation. According to this view, we could also explain why some of our best ophthalmologists insist on treating high degrees of myopia by atropine. They say that a continued use of the drug sometimes lessens the degree of myopia. While I myself have never seen any evidence of this, we are forced to take the truth of the statement for granted. Be this as it may, all authorities acknowledge that the effect on the degree of myopia vanishes after the atropine is left off. May we not conclude that the effect must be one directly dependent upon some mechanical action of the atropia, since we have no evidence that its action is anything but mechanical? "Mechanical" may not, perhaps, be the proper term; but the action of the drug is most probably due to the effect it has on the nerves, and, consequently, on the size of the blood-vessels controlled by them.

Now comes another important and interesting fact. In some cases where atropia has been used for a length of time it has caused the appearance of an acute attack of *glaucoma*. Why, then, may we not attribute glaucoma to some abnormal condition of the vessels of the interior of the eye, as von Graefe suggested long ago? Especially since it is a notorious fact that none of the theories of the etiology of this disease will hold good, when closely criticised, with the exception of the choroid hypothesis, so much the more stress can be placed on this origin of glaucoma, since we see it produced in myopic eyes by atropine, or in those very eyes which are not predisposed to such an affection. On the other hand, hypermetropia is the condition in which we most frequently find the disease. The liability of atropine to bring on an acute attack of glaucoma in an eye which is chronically affected with that disease is a further evidence that the state of the blood-vessels is probably at the bottom of the whole affair. It would also suggest that the peculiar form of the disease known as hæmorrhagic glaucoma may be only a more outspoken form of the general affection, so far as the blood-vessels are concerned, not only of the choroid, but also of the retina. It would also give us an insight into the reason why this form or condition of glaucomatous eyes forbids all operative interference on the part of the surgeon; not only from the danger of retinal hæmorrhage, but also from the profound disturbances to the choroideal circulation leading more easily to panophthalmitis.

E. Emmert has recently published a paper on the mechanism of accommodation of the human eye ("Archives of Ophthalmology," x, 4, 1881), in which he comes to the conclusion that the oculo-motorius nerve is that which supplies the ring muscle, and the sympathetic the radial muscle. He holds that the two sets in the eye have a different physiological action. From theoretical reasons, I would consider that the relation of primary and secondary work is much more rational, as can be seen by referring to our diagram. If it be shown by further investigation that the sympathetic nerve is really the motor nerve of one of these sets of fibers, it will materially add to the probability of the statements I have made concerning the action of atropine in producing the artificial hypermetropia which causes us to fail to determine the refraction of patients under atropine.

Emmert's article I did not see until after having written this paper, the "Archives" not having appeared until then. Therefore I have made no reference to it.

Reviews and Literary Notes.

Leçons de Clinique Thérapeutique professées à l'Hôpital Saint-Antoine par le Docteur Dujardin-Beaumetz, Médecin de l'Hôpital Saint-Antoine, etc. Recueillies par le Docteur Eug. Carpentier-Méricourt et revues par l'auteur. 2^{me} série.—1er fascicule. Traitement des Maladies du Foie et des Reins. Paris: Octave Doin, 1881. Pp. viii–244.

THIS *fascicule* is part of an exhaustive treatise on therapeutics from a clinical standpoint. Two volumes have now appeared, and the work will be completed in another volume. The treatise is one of high merit, as the reputation of the author, whose original investigations and contributions to medicine are of the greatest interest and value, would have led us to expect.

There are two ways of treating therapeutics. We may begin with medicaments, and describe their physiological properties and indicate their application to morbid conditions, or we may begin with diseases, study the therapeutical indications which groups of morbid phenomena present, and point out the remedies which here find their appropriate place. The latter is the clinical method; it is the method of Professor Beaumetz, whose work is a miniature treatise on practice, in which the treatment of disease receives the principal attention. The style is everywhere clear, animated, and forcible, and free from diffuseness; there is a profusion of foot-notes, which make the work somewhat cumbersome, although adding to its value as a book of reference.

This *fascicule* treats of diseases of the liver and kidneys. What are the data which form the basis of a rational treatment of affections of the liver? These are comprised in one chapter: the biliary cells and their secretions; the liver as a producer of glycogen and of urea, the now undisputed fact that many medicinal substances, such as alkaloids, introduced by the mouth are arrested in the liver, may there accumulate, partially or completely undergo destructive metamorphosis, and be eliminated—an explanation being thus afforded of the fact that morphia, atropia, etc., are much more efficacious when introduced subcutaneously. But, practically, we have little to do with the liver except as a bile-secreting organ, this being the only function that we can much modify with medicines. Hence, a consideration of cholagogues finds here an appropriate place. This, followed by a chapter on the treatment of gall-stones, one on jaundice, and two on engorgements and inflammations of the liver, completes what the author has to say on the therapeutics of diseases of the liver.

With regard to cholagogues, clinical experience will never yield to physiological experimentation its belief in the efficacy of a dose of "cleansing calomel" to "unload the portal system." Dujardin-Beaumetz concedes calomel a high rank as a cholagogue, but prefers the combination with corrosive sublimate, as follows: ℞ Calomelanos, gr. ij–v; hydrarg. chlorid. corrosivi, gr. $\frac{1}{30}$. Misce. Ft. dosis una. Recent researches have proved the bichloride to be superior to calomel as a cholagogue. Podophyllum retains its place as an efficient biliary stimulant, but its maximum action as a cholagogue is obtained from moderate, not from large doses. Aloes and rhubarb are good cholagogues, while the drastics (colocynth, croton oil, gamboge, and scammony) scarcely affect the biliary secretion. Small doses of ipecac promote the secretion of bile. Euonymin, irisin, hydrastin, and leptandrin are aqueous extracts of vegetable substances, lately brought into vogue. They all possess marked cholagogue power in doses of one to five grains, but need to be followed by some saline, such as sulphate of sodium. As for cholagogues of mineral origin, the salicylate, phosphate, and sulphate of sodium deserve the first place. The salts of magnesium probably have no marked action on the liver. The alkalies and alkaline carbonates, while not, strictly speaking, cholagogues, nevertheless regulate the digestive functions, promote the hepatic circulation, allay catarrhal inflammations of the duodenum when these exist, and render the bile less viscid, thus favoring its excretion. Moreover, it has been proved that alkalies augment the excretion of urea, and this, probably, by their action on the liver as being the principal organ concerned in the formation of that substance.

Biliary lithiasis affects women twice as often as men. It is favored by too fatty a diet, also by fasting. Persons of sedentary habits are predisposed to this affection, also those of the arthritic diathesis. Its characteristic phenomenon is biliary spasm; hence the pain so long known as the most atrocious colic. Mild attacks resemble gastralgia, but are distinguished from the latter by febrile paroxysms of a remittent or intermittent type. Dr. Beaumetz believes that the leading indication during an attack is to calm irritation and relieve pain and spasm. There is nothing better than a hypodermic injection of morphia and atropia, assisted by chloral and chloroform. This does not hinder the free passage of the gall-stone, but favors its discharge. He does not speak very favorably of the solvent power of turpentine, ether, etc., over gall-stones in the biliary passages. The waters of Vichy and Carlsbad are the best lithontriptics. These and other alkaline and laxative mineral waters may be resorted to with benefit by those afflicted with biliary calculus.

In the treatment of jaundice from obstruction, the author, recognizing the fact that this kind of jaundice is generally the result of gastro-duodenitis and choledochitis, the consequence in most cases of too stimulating and too abundant a diet, counsels abstinence from all food but milk, and the free use of alkalies. It is proper to stimulate the biliary secretion, in the hope that we may thus overcome the obstruction. Hence cholagogues, especially the saline purgatives, are indicated. The use of lavements of cold water twice a day is excellent. These irrigations of cold water constitute a powerful cholagogue.

Icterus without obstruction is very often the result of an exaggerated secretion (polycholia from congestion), or it may result from nervous perturbation, which causes an absorption of bile in the interstices of the lobules. Here a rational treatment must be directed to the cause, when such cause is apparent. These kinds of jaundice are not yet well understood, nor is that severer form known as grave jaundice; consequently, all therapeutists flounder somewhat in this miry ground.

Equally unsatisfactory is the treatment of the degenerations—fatty, amyloid, and carcinomatous, and somewhat humiliating is the confession that the most that we can do is to "assuage pain, prescribe the proper hygienic and dietetic regimen, support the strength," and "be persevering, for, spite of the certainty of your diagnosis, you can always hope that you have made a mistake, and that you will yet triumph over the disease." (P. 104.) It is this very incompetence of therapeutics to do what ought to be done which makes works on therapeutics occupy a second place in the estimation of many excellent men in our profession, who love the science of medicine and the art of surgery, but take little satisfaction in the treatment of disease.

In treating of the etiology of active congestions of the liver, the first place in causation is assigned to high living and the ingestion of alcohol. Among the symptoms, emphasis is placed on pain "girdling the base of the thorax, and radiating into different parts, especially the right shoulder"; there is almost always some jaundice, at least there will be "a subicteric tint of the conjunctivæ"; there is a fever, with marked exacerbations between 4 and 5 P. M.; in fine, there is often considerable dyspnœa. The treatment should be revulsive; large fly blisters are preferred to mustard epithems and to leeching. Those remedies that "unload the portal system" are especially indicated. Professor Beaumetz prefers calomel, euonymin, and chloride of ammonium. Vichy and Carlsbad waters render great service, also cold douches over the hepatic region. The douche ought not to exceed a minute in duration; thirty seconds is often enough. For diet, there is nothing better than milk.

The treatment indicated above for active congestions is the sole treatment of utility in cirrhosis, whose march can only be arrested in the first stage, when congestive phenomena predominate. The author relies on these four measures: "Revulsives, cholagogues, a diet of pure milk, and abstinence from all spirituous liquors." When cirrhosis has attained its complete development, there is nothing to do but to palliate. Diuretics, purgatives, and tapping are of doubtful benefit. In the most desperate cases, perseverance with a milk diet has "augmented the urine, supported the patient, and prolonged life."

It is interesting in this connection to note that, after a year and a half of experimentation with hogs, "which have been submitted to a chronic poisoning with alcohol in the abattoirs of MM. Dujardin-Beaumetz and Andigé," these experimenters have not yet succeeded in inducing cirrhosis of the liver in these animals. But the conditions have been hardly identical with those which are followed by cirrhosis in human beings.

Having used all the space allotted to us for this review, we are obliged to pass by the interesting chapters on diseases of the kidneys, which really contain the cream and marrow of all that is known on the subject. The entire work deserves translation.

A Practical Treatise on Hernia. By Joseph H. Warren, M. D., Member American Medical Association, etc. Second and revised edition, fully illustrated. Boston: James R. Osgood & Co., 1882. Pp. xvii–4 to 428, inclusive.

This volume, the author informs us, is intended to be a "practical treatise on hernia," and is dedicated to "the honorable student and regular practitioner of medical art." Webster defines "practical," "derived from practice"; we should expect, therefore, that one who writes such a book would at least have had some personal knowledge of his subject. If we leave out the chapters on "the author's operation by injection" for the radical cure of hernia, we fail to find anything "practical," in the volume. He does not seem to have ever operated in a single case of strangulated hernia by cutting, and the space devoted to that subject is in indirect ratio to its importance. The information obtainable from any work on general surgery, in regard to the treatment and management of hernia, is far more useful than that contained in this volume of over four hundred pages. The author reports two cases of amputation of the breast and one of removal of a tumor in the gluteal region, which have not the slightest connection with the subject of the book. It is not an original work, neither is it a good compilation. The incorporation of twelve pages of "notices to the first edition," most of them personal notes thanking the author for a presentation copy, is in as bad taste as are the many references to himself scattered through the book. It is a waste of time to read such a volume.

The Nurse and Mother. A Manual for the Guidance of Nurses and Mothers. By WALTER COLES, M. D., Consulting Physician to St. Ann's Lying-in Asylum, St. Louis, etc. St. Louis: J. H. Chambers & Co. Pp. 153.

THIS little volume is the outcome of a laudable desire to banish vulgar prejudice and ignorant tradition from the lying-in room. There is hardly a nurse but would be better qualified for her duties by a perusal of it, and it is fitted for her rather than the mother. The remarks about the mechanism of nursing, and about the dress of the child, are to be commended. On the other hand, the book is marred by instances of bad spelling, such as *breach* for *breech*, and *mucous* for *mucus*, bad construction of sentences, and bad printing.

Suppression of Urine. By E. P. FOWLER, M. D. New York: William Wood & Co., 1881. Pp. 86.

THE author describes a very remarkable case of anuria, which occurred in his own practice. He then presents in tabular form a *résumé* of ninety-three other cases, more or less similar. These cases are subjected to an exhaustive analysis, each symptom receiving consideration as regards frequency, importance, diagnostic significance, etc. The plan of the work is good, and it presents a considerable accumulation of facts in an intelligible form.

BOOKS AND PAMPHLETS RECEIVED.—The Diseases of the Spinal Cord. By Byrom Bramwell, M. D., F. R. C. P. (Edin.), Lecturer on the Principles and Practice of Medicine, and on Medical Diagnosis, in the Extra-Academical School of Medicine, Edinburgh, etc. Edinburgh: Maclachlan & Stewart, 1882. Pp. xxiii–

800. ═════ Spirillum Fever—Synonyms, Famine or Relapsing Fever; as seen in Western India. By H. Vandyke Carter, M. D., Lond., Surgeon-Major, I. M. D., etc. London: J. & A. Churchill, 1882. Pp. viii–446. ═════ On the Morbid Conditions of the Urine dependent upon Derangements of Digestion. By Charles Henry Ralfe, M. A., M. D., Caius College, Cambridge, Assistant Physician to the London Hospital, etc. London: J. & A. Churchill, 1882. Pp. viii–148. ═════ A Visit to Madeira in the Winter, 1880-'81. Two lectures. By Dennis Embleton, M. D., F. R. C. P., etc. London: J. & A. Churchill, 1882. Pp. 90. [Price, 3s.] ═════ A Case of Ectropion successfully treated by Transplantation of Skin from the Arm. By Louis H. Tosswill, M. B., etc. London: J. & A. Churchill, 1882. Pp. 10. [Price, 1s.] ═════ Anæsthesia and Non-anæsthesia in the Extraction of Cataract. By Hasket Derby, M. D., etc. Cambridge, 1882. ═════ A Manual of Dental Surgery and Pathology. By Alfred Coleman, L. R. C. P., etc., Senior Dental Surgeon and Lecturer on Dental Surgery to St. Bartholomew's Hospital, etc. Revised by Thomas C. Stellwagen, M. D., D. D. S., Professor of Physiology at the Philadelphia Dental College. Philadelphia: Henry C. Lea's Son & Co., 1882. Pp. xx–17 to 408, inclusive. ═════ First Aid to the Injured. By Peter Shepherd, M. B., etc. Revised by Bowditch Morton, M. D. New York: G. P. Putnam's Sons, 1882. Pp. viii–88. [Price, 50c.] ═════ Hints and Suggestions for Reform in Medical Education. By Frederic R. Sturgis, M. D., President of the Medical Society of the County of New York, etc. ═════ Proceedings of the Academy of Natural Sciences of Philadelphia, August–December, 1881. ═════ Some Points regarding the Diagnosis of Uterine Anteflexions and Anteversions. By Clifton E. Wing, M. D. [Reprint.] ═════ Annual Report of the Board of Health of the State of Louisiana, 1881. ═════ The One Hundred and Eleventh Annual Report of the state of the New York Hospital and Bloomingdale Asylum. ═════ Sixty-eighth Annual Report of the Trustees of the Massachusetts General Hospital, 1881. ═════ Quarterly Report of Medical Officers, United States Army, April 1, 1882. ═════ In addition we have received a number of pamphlets, the separate acknowledgment of which is prevented by lack of space.

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Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

(Continued from April number.)

Third Day, Friday, September 23d.

EXPANSION OF THE BLADDER OVER THE SURFACE OF ABDOMINAL TUMORS, AND ITS ATTACHMENT TO THEM OR TO THE ABDOMINAL WALLS, AS A COMPLICATION OF LAPAROTOMY.—Dr. T. GAILLARD THOMAS, of New York, read a paper in which he stated that no surgical operation during the last thirty years had attracted more attention, or the various complications of which had been more carefully investigated, than ovariotomy. The results of the large experience which had accumulated concerning it had been disseminated in every part of the world. It was a noteworthy fact, however, that, notwithstanding careful study and prolonged investigation in making this surgical procedure perfect, even now special points in its details still made their appearance which had almost entirely escaped the attention of men who were commonly exposing their own interests and those of their patients to the arbitrament of the knife. An illustration of this statement was to be found in the complication which was the subject of his paper, the expansion of the bladder over the surface of abdominal tumors, and its firm adhesion to them or to the abdominal walls. He did not refer to mere attachment of the bladder to tumors as the intestines, stomach, liver, and other viscera were attached to them, by false membranes. This condition, though a grave complication of laparotomy, was less serious and perplexing than an apron-like spread of the bladder, which was tripled or quadrupled in size, over the whole anterior surface of the tumor, from the umbilicus, or above, downward to the pelvis. The surgeon had to deal not alone with an important organ attached to a tumor which he was about to remove; he was shut off from access to the tumor by the intervention of a viscus necessarily firmly attached and easily lacerated by efforts to effect its detachment, and tearing it would be likely to result fatally. He was called, too, to deal with a complication which he had had no reason to anticipate, the nature of which he was not likely to recognize, and the presence of which would probably lead to a fatal error. He was able to find the record of but seven cases of this character, in all of which a fatal issue had been the result of the adhesion, either from injury done directly to the bladder—the surgeon not recognizing the nature of the complication—or from failure to remove the tumor on account of its existence; yet in no work with which he was acquainted was this condition dealt with systematically, the surgeon put upon his guard for its occurrence, or rules given for his guidance if he were so unfortunate as to meet with it. He would say little with regard to the pathology: it was perfectly simple. While the tumor was still small, within the pelvis, it became adherent to the bladder, and as it became larger it rose, and dragged the bladder upward, sometimes as far as the navel, and, as in the case which he was about to relate, sometimes as far as midway between the navel and the ensiform cartilage. In thus elevating the bladder considerable tractile power was exerted upon the attachments which united it to the tumor, making them strong, unyielding, and difficult to lacerate. Dr. Thomas then gave a short sketch of seven cases of this kind, the only ones of which he had been able to find a record, and a longer account of one which had occurred in his own practice, and which had suggested this paper. For an account of three of the cases he was indebted to Dr. Garrigues, of New York. The *first case* was reported by Dr. Bergman, in the "Petersburger medicinische Zeitschrift," 1869. In this case, in cutting through the peritonæum the bladder was opened. It was very much elongated. The tumor was a polycyst, firmly adherent to the linea terminalis, and could not be removed. The wound in the bladder was closed with silk sutures, and afterward the abdominal wound was closed. Death in thirteen hours. At the autopsy both ovaries were found to contain large cysts, with extensive and intimate adhesions to the intestines, iliac fascia and vessels, ureter, rectum, and vagina. ═══ The *second case* appeared in the "Deutsche Klinik" for 1869, reported by Dr. B. Stilling. The operator, on making an incision, found no peritoneal cavity, the peritonæum having everywhere become incorporated with the tumor or the abdominal organs. The bladder was very much elongated, and appeared like a cyst between the intestines, and, consequently, was punctured by the trocar. The tumor, which was an ovarian polycyst, could only be partially removed. The wound in the bladder was closed with wire sutures, and the abdominal opening with interrupted sutures. Death fifteen hours after the operation. It was found at the autopsy that the ovarian tumor was a dermoid cyst. ═══ Mr. Richard Neale, of London, reported the *third case*, in the "Medical Times and Gazette" for November 28, 1868. After the introduction of a catheter an exploratory incision was made in the median line, between the umbilicus and the symphysis, to within one inch of either. After opening the peritonæum the appearance presented was that of another layer of altered serous membrane covering the tumor. Adhesions were met with everywhere. The incision was enlarged, but the adhesions were so universal that no attempt was made to remove the tumor, and the wound was closed. The next day urine was discharged through the wound. A long male catheter passed easily up to the umbilicus, and was seen through the wound. It was found an incision an inch and a half long had been made into the bladder. The abdominal wound had healed almost entirely, except opposite the wound in the bladder, by the twenty-sixth day; it was then re-opened, the thickened and everted edges of the wound in the bladder were pared and brought together with fine wire sutures, and the abdominal incision was again closed. Thirty-seven days after the operation all urine was passed by the urethra except on one or two occasions, when the bladder, being over-distended, gave way in one spot, which, however, gradually healed. The patient died six months after the operation; it was then found that the tumor was a fibroid of the uterus, and to this organ the bladder was closely adherent. The bladder was in the form of a tube eight inches long by an inch to an inch and a half laterally, and could not expand sufficiently to hold more than two ounces of fluid. No trace of the wound remained. ═══ He had not the details of a case by Thiersch, of which Dr. Garrigues had spoken. ═══ The *fourth case* occurred in the practice of Dr. M. A. Pallen, in St. Louis, in 1868. A woman, aged twenty-six years, had an immense abdominal tumor, which was diagnosticated to be a unilocular cyst of the ovary. An attempt at ovariotomy was made. After cutting through the abdominal walls and evacuating the cyst, the pelvic adhesions were found to be so general that the bladder could not be distinguished from the cyst wall, and, being advised by Dr. J. T. Hodgen to make no attempt to separate the adhesions, Dr. Pallen stitched the edges of the abdominal incision and those of the cyst together. The patient died five days afterward, of diffuse peritonitis. There was such firm adhesion to the rectum, uterus, and bladder, that it could not be overcome on the cadaver. The bladder measured full nine inches in its longitudinal diameter, and almost as much laterally. ═══ The *fifth case* occurred in the practice of Dr. X., Dr. Thomas assisting at the operation of laparotomy, undertaken for the removal of a uterine fibroid equal in size to the gravid uterus at the seventh month. After making the incisions in the abdominal wall, a muscular-looking mass was seen, covering the tumor, and reaching up as high as the umbilicus. The operator supposed it to be a thick layer of false membrane, and peeled it off from above, but found, on carrying this detachment down to the symphysis pubis, that he held one wall of the bladder in his hand, while the other was attached to the surface of the tumor. He then quickly detached the posterior vesical wall, sewed the two together with silver-wire sutures, and removed the underlying tumor. The patient did not rally, but died a few hours after the operation. ═══ The *sixth case* was reported in the

"Medical Record" of February 8, 1879, by Dr. Leroy McLean, of Troy, N. Y. Before proceeding with the operation he introduced the aspirating needle and withdrew a quantity of fluid of the consistence and color of molasses. The bladder was then evacuated. The incision extended from half an inch below the umbilicus downward two inches and a half. At the lower end of the incision, three quarters of an inch from the surface, he cut into what appeared to be a cyst of the abdominal wall, which contained about two drachms of pale fluid. Not being quite satisfied with the appearance of things, the incision was carried upward to the right of the umbilicus and on a line with it, when the unmistakable ovarian sac was reached. The opening was completed below and the tumor was removed. Suppuration had begun in a portion of the sac. The tumor was multilocular in character. The pedicle was secured with a silk ligature and returned, being too short to clamp. It was then discovered that the bladder had been cut through on its anterior and posterior surfaces, down to the lower end of the incision. The anterior surface was strongly adherent to the abdominal wall. It was not adherent to the tumor. In using the finger as a director, when completing the incision from above downward, it had been passed behind the bladder—its walls being then in close contact from pressure of the tumor behind—and the walls of the viscus were cut. The bladder was repaired with interrupted silk sutures. The adhesions of the anterior surface to the abdominal walls were not disturbed. The abdominal incision was closed with silver wire. The patient was put to bed, and two ounces of urine were withdrawn with the catheter one hour afterward. The catheter was allowed to remain *in situ*. The patient died thirty hours after the operation. At the post-mortem examination the wounds were found to have been healing nicely, and there were no signs of peritonitis. The adhesions of the bladder to the abdominal wall were so firm that they could not be detached without tearing that viscus. The uterus was anteflexed and bound down by strong adhesions. ═══ The *seventh case* was one of ovariotomy, performed by Dr. E. Noeggerath, in Mount Sinai Hospital, New York, in October, 1880, and reported to the New York Obstetrical Society. [See "New York Medical Journal," Jan., 1881, p. 105.] ═══ The *eighth case* embodied Dr. Thomas's personal experience in dealing with this complication.* In November, 1880, Miss C., about thirty-eight years of age, a native of Canada, entered the Woman's Hospital on account of a large multilocular ovarian tumor. On the 6th of November she was submitted to operation. On cutting through the abdominal wall, making an incision about three and a half inches in length in the median line, and through the peritonæum, he found the surface of the tumor presenting a peculiar appearance, which arrested his hand as he was about to introduce the trocar and cannula. On enlarging the abdominal incision, and making careful examination, he was led to suspect that the mass overlying the tumor might be the bladder. He then attempted to pass a catheter, but the tumor pressed so firmly against the pubes that he could not pass it beyond that point. Becoming more and more convinced that he had to deal with extensive adhesion of the bladder, and yet being unable to prove that this was the case, he tried to determine the points of attachment of the viscus to the tumor, but in vain, so completely did the bladder seem amalgamated with the tumor. He found himself in this dilemma: Between the

* This case also was reported to the New York Obstetrical Society, and an abstract of it was published in the "New York Medical Journal" for February, 1881, p. 257.—EDITOR.

abdominal incision and the tumor there intervened a mass which he supposed was the bladder, spread over on both sides to such an extent that he could not evacuate it with the trocar, nor tear it off on account of the firmness of its attachments and his doubts as to its limits. He then enlarged the abdominal incision to above the umbilicus, hoping thereby to extricate himself from this dilemma, but he then found that the mass extended upward above this point. He then seriously thought of closing the wound and leaving the patient to a fate which he felt powerless to avert, but it occurred to him that, though he could not tear away the adherent bladder, for fear of injuring it, he could cut it free with certainty if he could only define its outward limits. To enable him to do this he cut through the anterior wall of the bladder, and passed the index finger in, when at once a flood of light was thrown upon the case. He learned exactly the extent of the viscus, and cut down upon the tumor, severing the strong attachments. By thus exploring with one or two fingers of the left hand, cutting down at the appropriate point, and tearing adhesions after cutting, he freed the bladder from its attachments, there being none between the posterior wall and the tumor, but only at the circumference. There was a great deal of hæmorrhage, and a number of ligatures had to be applied to bleeding vessels. The bladder was immense in weight and dimensions, and had extended upward to a point midway between the umbilicus and the ensiform cartilage, and well down into the lumbar region laterally. The trocar was then plunged into the tumor, it was removed, and its pedicle was cut, ligated, and returned into the peritoneal cavity. He was now freed from the tumor, but still had to deal with an immensely hypertrophied bladder which had an incision through its anterior wall. To meet this difficulty he made a clamp of the incised abdominal walls, with these securely clamping together the vesical walls. With Peaslee's needle he closed the abdominal walls from above downward, twisting the silver sutures until the wound was closed down to the opening in the bladder. Here he passed the needle through the abdominal wall, then through one vesical wall, then through the other, and lastly through the opposite abdominal wall, thus continuing to do until the whole opening was traversed. The sutures were then twisted, taking care to lift the bladder well up to the surface. A Sims's sigmoid catheter was kept in the bladder, and the after-treatment was conducted upon general principles. Convalescence was regular and rapid. Slight hæmorrhage taking place on the second day, two or three small vessels of the edge of the protruding bladder were tied, and a little persulphate of iron was applied. The sutures were removed on the tenth day. On the fourteenth day a slight oozing of urine took place, from an opening not larger than a cambric needle, in the line of incision. Into this he twisted a small tenotome and passed a suture which closed it entirely. At the end of three months the patient went back to Canada perfectly well. ═════ He considered it impossible to make the diagnosis of this complication of laparotomy before the abdominal incision was made. One who had had no experience in such cases would naturally regard the catheter or sound as of great value, but in his case, employed even after abdominal incision had excited strong suspicion of the existence of the complication, it was entirely inefficient, because of the pressure which the tumor exerted against the bladder at the symphysis pubis. As these cases were very rare, energetic efforts to explore the bladder would seldom be practiced when no evidence of misplacement of that organ existed. The operator's quickness of perception, an investigation of tissue by sight, touch, the tenaculum, and the scalpel, would have to be depended upon. Close and extensive attachment of the bladder to the tumor would render the diagnosis difficult even by these means; if it was attached to the abdominal walls, the diagnosis would be still more difficult. As to the treatment, if the bladder were attached to the abdominal parietes its anterior wall would usually be cut through before suspicion of the complication had been excited; if it were attached to the tumor, the danger of this accident would be much less Having once made the diagnosis, the bladder should, if possible, be separated by digital detachment. If the attachments were so strong that they could not be broken without danger of tearing the bladder, he thought making an incision into the anterior wall of the organ, introducing the finger as a guide to its outer limits, and then cutting through the adhesions, was the wisest course. If the anterior wall of the viscus had been incised, accidentally or intentionally, the plan of clamping the lips of the incision between those of the abdominal wound, he thought, promised better results than that of sewing up the opening with sutures, and returning the repaired viscus into the abdominal cavity.

Dr. Gilman Kimball, of Lowell, Mass., said he was very sorry he had not made some calculations with reference to this paper, for he might have been able to call to mind some cases which otherwise would escape his memory. With reference to the operation performed by Dr. Thomas, he thought it stood without parallel in literature for its wonderful ingenuity and skill, and its result. He did not say this for the purpose of flattery, but he thought it fairly due to the operator. He had had some sad experience in connection with this complication, but he would allude to two or three cases. The first time he met with it was in a case in which he began an operation with a view to removing an ovarian tumor. It was in the State of Maine. As he reached the tumor he found that he had encountered a fibro-cystic tumor of the uterus, but he proceeded with the operation and removed it, pursuing the same general method of ligation as he ordinarily practiced when removing an ovarian tumor. He did not, however, in that case use the clamp, because the pedicle was so short that he was unable to do so, and he was therefore obliged to ligate as best he could, and drop the stump. He transfixed the stump as low as possible without embracing the bladder, and, as he supposed, left that viscus free. This case went on remarkably well for two or three weeks, but at the end of three or four weeks there began to appear some escape of urine through the lower angle of the incision. The case then went on unfavorably, and at the end of seven weeks the patient died from exhaustion. There was no diminution in the escape of urine, but rather an increase, and there was but little discharge of urine through the natural passage. In the next case he attempted, in the city of Lynn, to remove what he supposed was an ovarian tumor. In that case, also, he encountered the same difficulty, and, after making the incision through the parietes, found that he had to deal with a fibro-cystic tumor of the uterus. He had been misled with regard to the character of the tumor by the previous history of the case, which was given to him by the attending physician. He proceeded in the operation, and with particular care, so as not to affect or in any way meddle with the bladder. He passed a catheter, and found that it was not implicated, and, thus guided, he applied a ligature about the tumor and safely removed it. The patient went on very well for several days, but before a week had elapsed there was an escape of more or less urine from the lower angle of the incision, and that, too, notwithstanding the ligature had not embraced any part of the bladder. At the end of four weeks the patient died with septicæmic abscess of the parotid gland. This case showed that, even if we did not directly embrace any portion of the bladder in applying the ligature, we might draw so closely upon it as ultimately to induce ulceration through its walls, and thus give rise to disastrous results. He then recalled another case. It was one of an immense fibroid, although the operation was begun with some hope that it might prove a very large multilocular ovarian tumor. It was impossible to apply the ligature about the pedicle of the tumor, and he undertook to cut it away piecemeal, hoping to reach a point where its application might be practicable. After cutting away about one half of the tumor, it was discovered that a portion of the bladder which was attached to its anterior surface was cut away also. It was not necessary here to speak of the result. With regard to ovariotomy where this complication existed, he could not recall a single case. He would now allude to a case of a very remarkable character, which, however, did not occur in his own practice, but in that of a gentleman residing in Providence, in 1876. The patient was brought to Dr. Kimball's office from Providence by a young physician who knew the tumor was a fibroid of the uterus. Dr. Kimball examined the case, and found it to be one in which no operation, in his opinion, was justifiable, and so expressed himself both to the patient and to the physician. The patient was almost indignant, saying that she had come a great distance, and had expected a more satisfactory opinion. He endeavored to point out to her the dangers of the operation, but an operation she was determined to have. Afterward he received a letter from the doctor, stating that the patient was determined upon the removal of the tumor, and again asking Dr. Kimball's opinion. He repeated his former opinion—that the operation was unjustifiable. Finally, however, the doctor did operate, and the day afterward Dr. Kimball got a letter from him, saying that he had done so. Two or three months afterward he received another letter, saying that the patient was getting well; and another, several months afterward, stating that the patient was fully recovered from the operation, and was then in good condition. According to the history of the operation, as given by the doctor, there were all kinds of complications; there were attachments in every direction; in the course of the operation two holes were cut into the bladder—one, half an inch, and the other an inch and a half in length—each of which he closed with silver sutures. He also cut into one of the intestines, making an opening about an inch in length, and this was also closed with silver sutures. These sutures, at the end of two or three months, began to discharge from various places—from the urethra, from the rectum, and from the line of incision. But the patient finally made a good recovery, and was now in apparently perfect health.

Dr. Emil Noeggerath, of New York, said he thought he expressed the feeling of all the fellows in saying that we ought to be very grateful to Dr. Thomas for his valuable paper upon this rare complication in uterine surgery. Although such cases were very rare, it happened by accident that Dr. Thomas's and his own occurred within two or three weeks of one another. He would mention a peculiarity which existed in his case, a general description of which Dr. Thomas had given. When the patient was on the table, he was about to perform ovariotomy according to his new method of tapping the tumor before opening the peritoneal cavity, and just before putting the knife to the skin he thought there might possibly be one complication constituting an objection to his method, namely, adhesion of the bladder to the front of the tumor. He began to operate, and, thinking he had cut far enough to introduce the trocar, he pushed this into the cyst, and then came upon the mass already referred to, which looked so much like one of those cases which we saw so frequently, in which part of the cyst was a little thickened and so covered by exudations it was impossible to realize the true condition of things, and he could not, indeed, until he had cut into it. Now, if we would consider that the bladder was a physiological cyst, and when covered by adhesions it looked exactly like an ovarian cyst, we could readily explain the accidents which Dr. Thomas had mentioned to happen. He thought it a great merit on the part of Dr. Thomas to have collected all these cases for the first time, showing to the profession, while its attention was directed to this subject, that such adhesions of the bladder occurred less rarely than was supposed. We had seen from Dr. Thomas's report that most of the cases in which the bladder was attached terminated fatally, but this, the speaker said, was not on account of the fact that the bladder was incised or involved, but because of the very extensive general adhesions which existed in almost every case. In his own case their extent was such that he could not think of removing the tumor, especially as the patient passed into a state of anæmia from the loss of blood. But the question then was, Would it be possible before beginning an operation to decide whether the bladder was adherent or not? In the study of that question he had passed the sound or catheter in cases of ovarian tumor, and had been able in almost every case to carry it high above the tumor, so that it was impossible to determine whether or not the bladder was attached. If on reaching the peritonæum in the performance of ovariotomy we found adhesions, then was the time to examine for the bladder, and now, after the light just thrown upon this subject, it would not be so difficult to determine the existence of the bladder in front of the tumor by the use of the catheter during the operation, but not before. However, since Dr. Thomas had given us this excellent method of dealing with the bladder in cases in which it had been injured, the accident would not be considered so serious as it had been heretofore.

Dr. G. J. Engelmann, of St. Louis, said he had had two cases in which the bladder had not been cut, and in both of which the patients made a good recovery. In the first instance the lady was a healthy, strong person, thirty years of age, the mother of several children. Dr. Hodgen and he examined the case, and found the tumor freely movable—so much so that it could be pushed from one side to the other. She had had but slight trouble on micturition. There was some question with regard to diagnosis, and Dr. Engelmann thought that at one of the examinations he found slight fluctuation below, and slightly above, the umbilicus. Afterward this fluctuation was not found. The tumor seemed to be of a semi-solid, colloid character. He entered upon the operation and proceeded rapidly, but he soon found that he did not know whether he had cut through the peritonæum or not. He felt beneath a mass which was apparently a thickened cyst, but he did not think it was the bladder. He would have cut through it, but suddenly a mass of small cysts with long pedicles came out through the incision, and that attracted his attention as something unusual. He then endeavored to introduce his hand, and found that he was unable to pass it in any distance. He determined, by careful manipulation, that these cysts were probably peritoneal. On the right side, finally, he found some space, and got his hand under this mass, and then the catheter was introduced. The instrument passed farther up than his incision, and he found that it was in the bladder, which organ continued upward. Its wall was very thin, and was attached to the tumor and to the omentum; and the omentum had been so thickened by inflammation that it was impossible to distinguish the one from the other. Fortunately, the attachments of the bladder to the tumor were not close, but allowed of some mobility He was advised to close the incision and abandon the operation, but the patient had been determined upon an operation, and he decided to go on. He enlarged the incision, and found perhaps a dozen small cysts attached to the diaphragm above the liver. The bladder was separated from the omentum and from the tumor. The patient made a perfect recovery. Had it not been for the cysts which made their appearance in the incision, he probably should have cut directly into the bladder. The second case was one in which Freund's operation for extirpation of cancer of the uterus was attempted, and in which he found precisely the same condition—the bladder was attached to the omentum and to the cancerous uterus.

Dr. William Goodell, of Philadelphia, wished simply to put upon record another case of extensive adhesion of the bladder, in which that organ was torn open. Not being as quick-witted as Dr. Thomas was to recognize the condition, he accidentally made an opening, but afterward utilized it as Dr. Thomas did his. The tumor was a fibroid, and was of the special geode-like variety in which it was honeycombed with small collections of fluid. It gave an obscure sense of fluctuation, which rendered the diagnosis very difficult. His object was to make an explorative incision and then determine what was to be done. When he cut down, to his surprise he found that there was neither a fibro-cyst nor an ovarian cyst, but a fibroid tumor of the uterus. The adhesions were very extensive, and in endeavoring to separate them he made an opening into what was apparently a cyst, but it was soon ascertained to be the bladder. It was spread out not quite as broad as his two hands, and was about an inch in thickness, being stretched directly over the tumor and incorporated with it. The hæmorrhage was serious, and he was compelled to operate very rapidly, and to dissect down to where he could get a ligature applied. He dissected the bladder from the tumor as rapidly as possible, and finally reached a point where he could put on a clamp, and then removed the mass. It was a very large fibroid tumor. The lady died from shock shortly after the operation. In view of the thickness of the wall of the bladder, he thought it best to sew up the tear with catgut sutures, and then closed the external wound as in the ordinary operation.

Dr. T. A. Emmet, of New York, remarked that every one must have been impressed with the masterly manner in which this case was managed by Dr. Thomas, and it must always be regarded as a classical one in some respects. It taught one very important point in ovariotomy, and that was the care with which we should always open the abdomen. He was surprised that adhesion of the bladder was not of more frequent occurrence. To draw attention to the necessity for great care in opening the abdomen, he would refer to a case which he had already reported, in which the stomach and transverse colon were spread out and attached by adhesion over the surface of the tumor below the line of the umbilicus and just above the bladder. It showed the necessity for opening the abdomen with the greatest care, and probably this was one of the most important steps in the operation of ovariotomy.

Dr. T. M. Drysdale, of Philadelphia, said he had met with extensive adhesions of the bladder to abdominal tumors, but so far he had not opened that organ. When he had reason to suspect that there were adhesions between the bladder and the tumor he always introduced a sound immediately after making the abdominal incision.

A Case of Partial Inversion of the Uterus caused by a Fibroid Polyp.—Dr. T. A. Reamy, of Cincinnati, then read a paper with this title, and presented a specimen, a fibroid polyp, which had no pedicle, but had a cup-shaped depression at the point of its attachment to the fundus of the uterus, and which at the time of its removal was five inches in its transverse diameter and three inches and a half from above downward. It was attached to the fundus to the extent of two inches. The patient was twenty-four years of age, and was operated upon on the 15th of June last. During the first six months her menstrual life was irregular; subsequently, up to twenty-one years of age, it was perfectly regular and natural, and she was in good health. Gradually, from this time on, the flow became more profuse and the duration at each time was prolonged, and she suffered from metrorrhagia and abdominal and pelvic pains. Her health rapidly broke down. On several occasions the hæmorrhage from the vagina was so profuse as to cause the greatest alarm. In February last she was seized with severe pains, which she described as like labor pains. There was copious hæmorrhage, and she fainted, and on recovering from the syncope she was comparatively free from pain. Another physician into whose hands she passed discovered a growth in the vagina which he suspected might possibly be malignant. When Dr. Reamy saw her she was in a very bad condition as regarded general health. He felt an ovoid body behind the pubes, somewhat larger than the virgin uterus, which was very slightly movable and not at all tender. Examining *per vaginam*, he found the tumor completely filling that canal, being as large as a fœtal head at term. It seemed immovable, was insensitive, and bled freely on manipulation. He supposed he had to deal with a fibroid polypus, and the question was whether there was partial inversion of the uterus. The patient was put thoroughly under the influence of ether, and conjoined manipulation was made. The fundus was normal in shape, and no depression whatever could be detected. The uterine sound could then be passed in a distance of two inches and three quarters. He thought he detected a neck to the tumor, and determined to remove it with the écraseur, but, fortunately, this instrument broke, for it was determined afterward that what was supposed to be the neck of the tumor was only a partial inversion of the uterus. The tumor was then cut and drawn down by the vulsella forceps. The inverted portion of the uterus was easily replaced. The uterus was washed out with a two-per-cent. solution of carbolic acid, and the woman was put to bed. She entirely recovered. The case illustrated the difficulty of diagnosis, notwithstanding all our improved methods. Hereafter he would be very solicitous with regard to the diagnosis, and in cases of the least doubt he would not hesitate to quarter the tumor and clear up this doubt. It seemed to him clear that the tumor was expelled in February, the night that she suffered as if in labor.

Dr. J. Marion Sims, of New York, said that the interesting paper just read by Dr. Reamy showed that the best of us might be confused in diagnosis. He thought that most of us would have made the same diagnosis which Dr. Reamy made, and probably would have proposed to remove the tumor just as he did. If he had not broken his écraseur, Dr. Sims thought he would have safely removed his tumor, for, as we knew, Spencer Wells, Savage, and others, had removed an inverted uterus, thinking that it was a polypus, and the patients had generally got well. It was a very curious fact that it was only two and a half inches to the fundus of the uterus after the tumor had been expelled from the cavity of the uterus, whereas the uterus measured five inches before the tumor escaped. That would rob us of one of the chief diagnostic features in the case. There was no doubt that the tumor was expelled as Dr. Reamy supposed—namely, the night before the morning in which he measured and found that the depth of the uterus was only two and a half inches. The uterus, doubtless, had simply doubled upon itself, and that would explain its losing depth, and also the difficulty in diagnosis. When in San Francisco, in 1877, Dr. Sims was called to see a case of enormous polypus in the vagina. He examined the patient thoroughly and minutely, and found the tumor was as large as a fœtal head. It was impossible to touch the os with the finger, and it was impossible to reach it by way of the rectum. However, from the general characteristics of the case, they reached the conclusion (for he saw the case with Dr. Cole, of San Francisco, and Dr. H. Marion Sims) that it was a simple fibroid polypus. The patient had been bleeding some eight or nine years. She was over fifty years of age. He tried to cut the neck of the tumor with the scissors, but he found that they were too weak to make a complete incision. He was unable to apply the écraseur. He made incisions into the perinæum and withdrew it from the vagina, but, although the incision was free, there was complete laceration of the perinæum through the middle. After the tumor was removed from the vagina he enucleated it from the uterus, and the patient made a good recovery. Only three months after that a similar case came into the hospital, under the care of Dr. Douglass, who called Dr. H. Marion Sims to see the case, and they were uncertain with regard to diagnosis. However, he drew the tumor to the outside in precisely the same manner in which he (Dr. Sims) had done in the previous case, and enucleated it, and the patient made a good recovery.

Dr. **Fordyce Barker**, of New York, wished simply to refer to a single point. He had removed a great many of these tumors, and had frequently been obliged to invert the uterus partially for the purpose of removing the polypus. One case, which he met with in 1855, had a peculiar feature. He was assisted in the removal of the tumor by the late Drs. Budd and Elliot. The patient was thirty-six years of age. She had had protracted hæmorrhage from the vagina, which was increased at each menstrual period, but was continuous. When he saw her she had had no hæmorrhage for about five weeks, and menstruation had not occurred. He found the tumor completely filling the vagina, so much so that he was unable to pass anything around it. He attended to the patient's general condition, giving her iron, stimulants, good food, etc., and then after a few days administered ergot with a view to excite uterine contractions and forcing the tumor down, and also with a view to arrest its circulation. The ergot produced its specific effects markedly for two or three days, and then it ceased to operate. Then, with assistance, he succeeded in getting the obstetrical forceps in, and it required a very great amount of force to withdraw the tumor. He made an incision upon each side of the perinæum, and then made strong traction—much stronger than was usually made in the extraction of a child's head, but there was no rupture of the perinæum. The incisions, however, gave way, and extended considerably after the extraction of the tumor, which was as large as a child's head at term. He then examined the tumor, and saw very clearly the line of demarcation. It could be distinctly recognized, both in appearance and color. He found that he was able to get around the pedicle, which was two and a quarter inches in diameter. He cut carefully through the pedicle, which cut almost like cartilage, and no blood escaped. As the last part of the incision was completed, the uterus recoiled from its state of inversion with a noise which was perfectly audible to all present. There was not more than a drachm of blood lost, and on examination it was found that there was a slight depression still remaining at the fundus of the uterus, which was readily removed. The patient made a good recovery. The special point of interest in this case was the simple fact that the uterus was inverted by an operation for the extraction of the tumor, and that as soon as the pedicle was cut it resumed its normal shape with an audible noise.

Dr. Goodell thought it was a safer method of procedure in this class of cases to do as Dr. Sims and Dr. Barker did—bring the tumor down so that it could be inspected, then we were sure of finding the line of demarcation. Some three years ago he had a case similar to that related by Dr. Sims. It was in a woman who had never been married, who was apparently a virgin, and between thirty and forty years of age. The tumor was of about the size of a fœtal head. He made deep lateral incisions, but, despite them, the perinæum was badly torn. When the tumor was drawn out from the vagina he found the line of demarcation, and enucleated the tumor with his finger-nail without any difficulty whatever. The womb was, of course, inverted, but was immediately restored. The amount of traction in the extraction of the fibroid was as great as that necessary to be exerted in a hard labor case. He was enabled to enucleate the tumor without the slightest difficulty. He then stitched up the perinæum, and the patient made an excellent recovery.

Dr. I. E. Taylor, of New York, said that the largest of these tumors which he had ever seen measured four inches in diameter and sixteen inches in circumference. It was removed by the écraseur. He referred to the fact of difficulty of diagnosis in those cases of inversion of the uterus in women who had never borne children. Such cases, however, were exceedingly rare, and some authors denied their existence at all. He also referred to a case of partial inversion of the lateral wall of the uterus, and to the liability of mistaking it for a fibroid tumor and removing it.

Dr. Emmet said that, in a case of doubt, if the uterus were drawn down to the vaginal outlet, the cup-like depression in the fundus could always be felt through the rectum.

Dr. John Byrne, of Brooklyn, expressed surprise that, in the discussion of this most important subject, no reference had been made to what he, as well as some of the best authorities, believed to be the safest method of removing tumors such as that described by Dr. Reamy. He referred to the galvanic-cautery loop. He had met with two precisely similar cases, and, so far as regarded the surgical treatment of all such tumors, he must say that if there was any one instrument more dangerous than another, it was the écraseur. He preferred to dissect such tumors away piecemeal rather than to use the chain, or even the cold wire. When there was any doubt with regard to partial inversion of the uterus, as an important precautionary measure, before attempting to tighten the loop, the tumor should be returned or elevated as much as possible. If it was within the vagina, it should be pushed up as much as possible before any constriction was made. In one case he escaped taking away a large portion of the fundus by exercising this precaution. For the removal of such tumors, he would repeat, the heated wire was safer than any other means which could be employed.

Dr. M. P. Jacobi, of New York (present by invitation), said that Dr. Byrne had referred to the fact that some methods of removing these tumors were not mentioned in Dr. Reamy's paper, and there was still another method well known to the profession—she referred to the use of Dr. Thomas's serrated scoop. She had had an opportunity to remove a sessile tumor very much like that described by

Dr. Reamy by this means, and, by drawing down the uterus, its fundus was partially inverted, but the tumor was removed with very great facility. There were two points in that case to which she would like to refer. The tumor occupied the fundus completely, so that, in measuring, the sound would only pass eight centimetres, although it was evident that the uterus was very much larger than that would indicate. The tumor was diagnosticated as being intra-mural, and, after a certain amount of ergot had been administered, it was expelled and inverted the fundus of the uterus. It was found then to be completely attached over the surface without a pedicle, but there was a distinct line of demarcation, which left no difficulty in removing the tumor by the use of the scoop. It seemed that the question of the use of the écraseur, or chain, was very much modified by the fact that there was really no danger of hæmorrhage from cutting through the pedicle of these tumors. The blood-vessels were all on the surface of the tumor, and there were hardly any in the portion attached to the fundus, and scarcely a drop of blood was lost in its removal. That being the case, she did not understand why it should be necessary to use the écraseur, as it was an instrument especially devised for the removal of growths or tumors the removal of which was liable to be attended with more or less dangerous hæmorrhage. There was another interesting point, and that related to the development of these tumors. She believed the classical statement was that they were developed from the muscular fiber of the uterus. It was interesting, however, in this particular case, to find the surface of the tumor occupied to a considerable depth with embryonic tissue, identical in appearance with the embryonic cells found under the epithelium of the uterus. She thought that was a point of departure to which we should look for the origin of these growths, and that the fibrous tissue and the muscular structure were developed from this afterward.

Dr. Reamy said there were several points to which he would like to refer, but he would allude only to a few of the more important ones. First, with regard to the necessity of guarding against hæmorrhage in these cases, as referred to by Dr. Jacobi. He had encountered hæmorrhage which was quite profuse, and he had seen quite large blood-vessels in the pedicle of these tumors. It was not uniformly true that the blood-vessels were confined to the mucous membrane. As to the advantages of the wire, he thought the comment made by Dr. Jacobi was correct. There was not much danger of septicæmia in these cases. He did not think, however, that the galvanic-cautery wire could be used with as much rapidity in the uterine cavity as, or with less danger than, the écraseur, as suggested by Dr. Byrne, except by experts. Dr. Byrne also recommended that the mass should always be returned before tightening whatever was thrown around the pedicle. In the case reported it would have been impossible to return it, for it filled the vagina so completely that it was impossible to move the mass in any direction. He might here also remark that the partial inversion of the uterus could not have become complete, because of the inability of the tumor to escape through the rigid vulvar opening. Dr. Emmet had recommended that the tumor be brought down to the vaginal orifice. He would have been unable to do this in this case unless he had torn the perinæum. He should recommend cutting the tumor rather than tearing the perinæum. Where he had no doubt about the tumor being a polypus, he should cut it to pieces with the scissors and remove it in that manner, rather than risk making incisions into the perinæum and extracting the tumor whole. With the patient under ether, and with the most thorough examination, keeping the fingers of one hand in the rectum and the other hand upon the abdominal wall, he was unable to feel any cup-shaped depression in the fundus of the uterus. With this experience before him, he was really almost compelled to feel the force of Velpeau's statement when he had cut into the uterus—namely, that in these cases "there is no rational conclusion except one of doubt."

Axis Traction of the Obstetric Forceps.—This was the title of a paper read by Dr. Albert H. Smith, of Philadelphia. The author began the consideration of the problem of the forceps by asking the question, how to extract by means of the instrument the head of the living child through the pelvis of the living mother (whose powers were inadequate to complete delivery in obedience to Nature's method) with the least strain upon the tissues of the mother and the child, and with the least expenditure of force upon the part of the operator. In order to do this, the force used must be exerted in a direction contrary to the line or axis of resistance, and, therefore, necessarily in the direction of the pelvic axis. He then proceeded to speak of the want of appreciation generally upon the subject embraced under the three propositions, as follows: First, that the axis traction might be exerted in the corresponding axis of the pelvic canal; second, that it might be exerted perpendicularly thereto; and, third, that it might be exerted obliquely. Hodge was the only writer among English or American authors who gave any marked details as to the method of axis forceps application. Dr. Smith considered this a most important subject—one which should receive the most careful attention on the part of students; and yet there was none on which their instructions from the hands of obstetric teachers were more meager or more faulty. Most authorities, it was true, urged that traction be made coincident with the pelvic axis, but they made no suggestion with regard to its practical application, with the exception of Hodge, who spoke of backward and downward pressure on the lock as sometimes desirable; but even he did not dwell upon it much, nor did he give directions as to how it should be managed. The mathematical argument of the question he would not enter upon, for it had been fully presented by other writers. For his own part, he was fully convinced that axis traction was the only method by which a child's head should be extracted, and he raised the question whether the ordinary forceps, well constructed, was not in its simplicity able to do all that was necessary without resort being had to instruments more complicated in their structure. There was no doubt that the old teachers of obstetrics recognized in their every-day experience the necessity for axis traction, but they gave no directions regarding it in their works. The first writer to call attention to the subject was Osiander, of Göttingen, in 1799, who spoke of axis traction, and of the method by which it should be accomplished; but his work had not been referred to except by German writers. Dr. Smith then gave, at some length, the views of this old author, and illustrated his manner of applying axis traction, which consisted essentially in making pressure downward upon the lock of the instrument in a line parallel with the axis of the superior strait, or the strait of that portion of the pelvis in which the head of the child was engaged, and at the same time making upward pressure or leverage with the other hand on the handles of the forceps. Dr. Smith believed that, sooner or later, all obstetricians would adopt this principle enunciated by Osiander, recognizing the fact that force exerted upon the child's head did not act at variance with the laws of mechanics elsewhere. He, however, did not accept Osiander's views with regard to making rotary or pendulum movement. The axis-traction principle of Osiander was recognized by Nägele, in 1843, when he recommended a fillet to be placed over the lock of the instrument, by which traction could be made downward. Then came Hermann, of Berne, in whose instrument Dr. Smith recognized the traction forceps of Tarnier. In Hermann's forceps we had the first introduction of the perineal curve; and in proceeding to speak of these instruments, giving an account of how he obtained a specimen, the author spoke particularly of Tarnier's forceps, and said that he regarded it as exceedingly dangerous and complicated, although he had never used it upon a living subject, only upon a manikin. His objections to Tarnier's forceps, and to all other forceps with traction rods, on theoretical grounds, were, first, that they were complicated and expensive, which must prevent them from coming into general use. He believed that every change or modification of the forceps which reduced its simplicity detracted from its utility. Secondly, difficulty of disinfection. Thirdly, he objected to the compressing screw, thus substituting a machine for the intelligence of the operator. Fourthly, by making traction blindly it could not do what it professed to do—make axis traction at all. Dr. Smith then asked whether axis traction could be effected by any manœuvre with the ordinary forceps, and he answered the question emphatically in the affirmative. Indeed, he could say without presumption that he knew it could. He stood the humble advocate of the principle enunciated by Osiander, which could be formulated as follows: Place the palmar surface of one hand upon the lock, and the index finger of the same hand in contact with the head of the child; then make downward pressure with the same hand firmly fixed upon the lock exactly in a line parallel with the axis, while with the other hand upon the handle of the instrument the pressure downward was antagonized by lifting upward, producing thereby a leverage. He discarded the circular or rotary movement, and it was this, he thought, that had led authors to condemn Osiander's method. To effect delivery according to the views enunciated, it was his principle to use the simplest ordinary obstetrical forceps, and he recommended most highly the forceps devised by Davis. He then illustrated upon the manikin, with the long Davis forceps, how a child could be extracted from the superior strait according to the principle enunciated, and also how a child could be extracted with the Davis short forceps in accordance with the same principle when only a slight degree of axis traction was necessary.

(*To be concluded.*)

NEW YORK OBSTETRICAL SOCIETY.

A STATED meeting was held December 20, 1881, Dr. CHARLES C. LEE, President, in the chair.

PROLONGED GESTATION.—Dr. L. A. RODENSTEIN read a paper with this title [see p. 477 of this number of the Journal]. In the discussion, Dr. T. G. Thomas said that he had met with but two cases in which the evidence was very strong in favor of pregnancy having continued until the end of the tenth month. Of course in his large experience he had met with a number of instances in which women claimed that pregnancy had gone on to the eleventh month, but in every such case their statement was unreliable, and he attached very little importance to it. In one of the two cases referred to the woman was well formed, and subsequently bore a child of large size without difficulty. On the occasion on which there was every evidence that pregnancy had gone on to the end of the tenth month the child was of very large size, and craniotomy and embryotomy had to be performed. The portions of the child weighed eighteen pounds. In the other case the evidence was equally strong in favor of pregnancy having continued until the end of the tenth month.

Dr. E. NOEGGERATH said that prolongation of pregnancy was not limited to the human species. It was well known that it also occurred in animals, especially in cows. Gestation in cows varied in duration from two hundred and fifty-three to three hundred and twenty-five days, which showed that it sometimes extended almost two months over the ordinary term, namely, two hundred and fifty-three days. The only carefully prepared statistics on prolonged gestation which had been published were those of Tarnier and Chantreuil, who asserted that there was no thoroughly reliable case on record in which pregnancy had continued beyond the two hundred and ninety-fourth day, and this accorded with the spirit of the French code, which conceded legitimacy to a child born within three hundred days after separation of the husband from the wife, and also with Dr. Noeggerath's own belief. Cases of pregnancy reported to have extended beyond the two hundred and ninety-fourth day must be supported by the most positive evidence before they were accepted as true, and we should be very guarded in making statements regarding prolonged gestation.

Dr. W. R. GILLETTE said that Dr. Noeggerath's remarks with regard to prolonged gestation in cows reminded him of a case. A very choice cow of his own was put to the bull in August, 1880, and most carefully secluded and guarded against any possible chance of conception subsequently. Utero-gestation went on to the twelfth month, when she brought forth a calf of diminutive size. The uterus was inverted and the cow died. He thought, with Dr. Noeggerath, that, since gestation might be prolonged in the lower animals, it might also be prolonged in the human species, the same physiological laws probably holding in both cases.

Dr. NOEGGERATH remarked that in many of the cases on record of prolonged gestation in the human species the child was reported to have been smaller than the average size.

Dr. THOMAS further remarked that the question of prolonged gestation was one of very great importance, and a society like this should be very guarded in expressing its opinion with regard to the probability of reported cases. Dr. Rodenstein's cases were very interesting, but they should be weighed in the balance very carefully before they were accepted. The necessity for care in expressing an opinion regarding prolonged gestation was illustrated in the case o a child born eleven months after the death of the husband of the child's mother in which case, if legitimacy were allowed, the child might fall heir to large estates and many privileges. Dr. Thomas then gave some instances showing the liability to error by most honest and careful men in inferring the existence of prolonged gestation in certain cases in the lower animals.

Dr. W. T. LUSK narrated a case which had been reported on a previous occasion, which went to show that a woman, in dating pregnancy from the cessation of her menses, when in fact conception took place subsequently, might honestly mislead her physician to suppose that it was a case of prolonged pregnancy.

The PRESIDENT mentioned a case in which he was requested by Dr. Thomas to attend a woman during pregnancy. She was very positive that she was pregnant, and fixed the date at which conception took place; and there was every reason to suppose that she had not made a mistake. Subsequently she was seized with what she supposed to be the pains of miscarriage, but after a most careful examination it was found she had not been pregnant at all. Since she was living with her husband during this time, had conception taken place subsequent to the period from which she dated her supposed pregnancy, confinement would not have taken place so soon as she had expected, and it might, therefore, have been incorrectly inferred that the case was one of prolonged gestation.

CONTINUED GROWTH OF THE PLACENTA AFTER THE DEATH OF THE FŒTUS. —Dr. A. J. C. **SKENE** said that the cases related by Dr. Rodenstein recalled to his mind a somewhat curious case of miscarriage to which he was called in consultation by a physician, who was the father of the patient. The patient had borne three children, and had reached, as it was supposed, three and a half months in her fourth pregnancy, when she sustained a slight injury in attempting to get into a carriage, which caused hæmorrhage from the uterus. From this time the symptoms of progressing pregnancy ceased. Dr. Skene saw her at the fifth month, and found the uterus nearly as large as it should be at this period. He was satisfied that the patient was pregnant, but felt doubtful as to the condition of the ovum. As the patient was in good health, and suffered only from a little apprehension, he advised her to lead as quiet a life as possible, and await further developments. At the end of the seventh month he saw her again, and found her health failing a little, as was liable to occur in cases of delayed abortion. The uterus was found to be of the same size as at the previous examination. Dr. Skene told the patient's physician that there was no doubt that the product of conception had been dead for some time, and advised him to return home and empty the uterus, suggesting the use of the flexible catheter. He inserted the instrument that evening, calling in a neighboring physician to assist him. Labor pains came on the following night, and the next forenoon the membranes ruptured and quite a large quantity of water escaped. The patient's father and his assisting physician carefully examined all the discharges, but found no ovum. About an hour later she again had slight pains and the placenta was expelled. Dr. Skene saw the placenta, which was rolled up and of about the size of a healthy placenta at the fifth month, and, although it was somewhat anæmic, it had evidently maintained its vitality up to the time of its expulsion. Being confident that no fœtus had come away, her physicians remained by her until late in the evening, but she had no further pains nor hæmorrhage. Dr. Skene, who had been sent for, now made a thorough examination of the uterus and found its cavity completely empty, and nothing had since been expelled from the uterus which could be taken for a fœtus, although two months had elapsed since the expulsion of the placenta. Dr. Skene at once suggested to her physicians that the fœtus had escaped without attracting their attention, but they denied the possibility of its having done so, and they were perfectly honest, reliable gentlemen. He asked the opinion of the members of the society as to the probability of the embryo dying early, say at the end of the third month or at the time of the injury, and the placenta continuing to develop afterward. In reply to questions, Dr. Skene stated further that the placenta was about four or five inches in diameter, of the usual thickness, and perfect in every way. There was no cord, although there were signs of its having begun to develop at the usual place, about the center of the placenta.

Dr. **NOEGGERATH** thought it was possible the fœtus might be expelled at some future time, and related the following case in support of that supposition: A woman residing on Staten Island came to his office and stated that two months previously, four months after her supposed conception, she had expelled the fœtal membranes, but the fœtus itself had not come away, and she wished him to make a careful examination; her husband was going to Europe, and it was important to remove all possibility of suspicion. On careful examination he found the uterus somewhat enlarged and softened, but he could find no sign of a fœtus whatever, and told the woman to fear no trouble; let her husband go to Europe, for it was impossible that there could be a fœtus in the uterus. But about six weeks later she brought him the fœtus, which was perfectly fresh and had the appearance of one at three months. A few such cases were on record, in which the placenta had been expelled previously to the birth of the fœtus. The question as to whether the placenta might continue to grow after the death of the ovum could certainly be answered in the affirmative; but usually its character was changed, being transformed into a fibrous mass. It was very exceptional, however, that the placenta remained for a long while attached to the uterus, and changed but little in character. He had seen a case of this kind in a patient whom he was called to see by her physician about two months after her confinement. He was requested by the doctor to remove what he supposed to be a large fibroid polypus of the neck of the uterus. On examination he found a large, hard mass attached to the neck, and in trying to get at the pedicle found that the neck was somewhat incased by the tumor. This mass, or polypus, was friable, and by using some force he succeeded in pulling it away from its attachments to the neck. It proved to be a placenta (probably succenturiata), which had been molded into a round mass by the vagina, and had become re-attached to the neck at the seat of former ulcerations. New vessels had formed at the seat of attachment. It was so plain a case that there could be no doubt about the correctness of this explanation. Many of the gentlemen present must have seen cases of intra-uterine polypus dating from a miscarriage one or two years previously, now presenting at the os, and on being removed found to contain placental tissue. When, however, it remained within the cavity of the uterus for some time the placental tissue lost its original character to a great extent, and became transformed into a fibrous mass.

Dr. SKENE remarked that he was acquainted with the changes which placental tissue underwent under the circumstances referred to by Dr. Noeggerath. No such change had occurred in this case; the placenta was perfectly normal, with the exception of being rather anæmic in appearance. Had anything remained within the uterus after the discharge of the placenta, he thought a very careful examination would have detected it, especially so if it were a fœtus corresponding in size with the placenta. Moreover, he could not imagine how the patient could retain good health and menstruate regularly, as she had done twice since, if the fœtus had not yet come away. He would not have thought for a moment but that the fœtus had escaped at the time of the induced labor had not the physicians present, who were thoroughly honest, made a careful examination of everything which escaped from the uterus. Dr. Skene thought it was not improbable that the fœtus came away when the patient received the injury and had hæmorrhage.

Dr. W. M. CHAMBERLAIN related a case which might have some bearing on this point. In 1863 he delivered a woman, following which she had a very acute attack of puerperal metritis. About eleven months afterward she again became pregnant with her fifth child. She recognized nothing unusual in the course of the pregnancy until about the fourth month, when abortion took place. Dr. Chamberlain arrived just in time to remove from the vagina the products of conception, which consisted of a mass of tissue as large as the bowl of a goblet and resembling condensed lung tissue. No cord was attached to it. Its outlines were irregular, and, on cutting into it, in the center he found a cavity not larger than a walnut, which was lined with a smooth and apparently serous membrane, but contained no trace of a fœtus. Here, then, was a fleshy mole, formed in the cavity of the uterus, undoubtedly the product of conception, the explanation of which, Dr. Chamberlain thought, consisted in the fact that, owing to the previous attack of disease, the nutrition of the uterus was peculiarly modified, the tufts of the chorion all round went on to develop and became the seat of this modified nutrition, leaving this central cavity, in which the embryo either never attained to sufficient size to be distinctly observable, or was absorbed. The specimen was not examined microscopically.

Excessive Uterine Hæmorrhage controlled by Injections of Very Hot Water.—Dr. Chamberlain also narrated the following case: The patient, who was referred to him by Dr. J. L. Campbell, was a stout, strong, healthy woman, who had borne five children, all of whom were living; but her last two pregnancies had terminated in abortion. She menstruated last on the 7th of June, 1881. On the 1st of August she was taken with symptoms of abortion, but did not send for a doctor. Something passed from her; she did not know what, but she did not recognize it as an ovum. Hæmorrhage continued, at first at intervals, but constantly of late. She brought her physician specimen after specimen of matter which she supposed to be the product of conception. The patient was becoming reduced in strength as a result of this long-continued sanguineous and fœtid discharge, and Dr. Chamberlain was requested to see her. He inferred at once that the abortion had been incomplete, and proposed to evacuate the uterus of any remaining contents. The patient was placed on a table, and a considerable quantity of friable tissue was removed from the cavity of the uterus with the dull curette. Hæmorrhage ceased, but septic symptoms developed, which passed away in a day or two, when hæmorrhage reappeared, with an exceedingly fœtid discharge. It then seemed probable that the remnants of embryonic tissue had become the seat of papilloma. The uterine cavity measured five inches. Dr. Chamberlain determined to remove this neoplasm by scraping the cavity forcibly with the soft curette, and, anticipating some bleeding, attached a female catheter to a Davidson's syringe, and provided a hot solution of alum. Before he had completed the scraping, the most alarming hæmorrhage began. Blood flowed in a torrent, and continued to flow, though a quart of the prepared solution was passed rapidly through the uterus. Boiling water was then added until the finger could hardly bear the heat. With this the bleeding gradually and completely ceased. Syncope did not occur, though it seemed most likely to attend such rapid loss. The next morning Dr. Chamberlain found a blister as large as a half-dollar over each tuber ischii, although the cervix and vagina did not show signs of having been overheated. There had been no marked pain or other disturbance, and thus far the hæmorrhage had not returned.

Puerperal Pulmonary Embolism.—Dr. W. M. Polk said that in narrating the following case he wished an expression of opinion of the members of the society with reference to what might have been the exact condition present. He had supposed the case to be one of pulmonary embolism. The patient had a normal confinement in March last, and, partly from choice and partly at his request, she remained abed two weeks afterward, although there was nothing specially indicating any necessity for it. About the fourteenth day, after sitting up about an hour, probably, she felt a sense of oppression about the chest, and soon afterward had a sensation of impeded respiration, which alarmed her, and Dr. Polk was sent for. When he arrived he found the surface somewhat cold, and a little clammy perspiration present; there was distinct cyanosis of the lips, and a little grayness of the face, suggestive of cyanosis. The heart's action was perfectly regular, beating at 115 to the minute. This trouble with the respiration continued three or four hours, and gradually passed off. She was breathing at the rate of about 35 a minute, and now and then took a deep sigh, which was indicative of obstructed respiration. The most apparent explanation which suggested itself to his mind was, that a small embolus, not large enough to plug up the pulmonary artery, but sufficiently large to plug up one of its larger branches, had become detached from the internal iliac vein and carried to one of the larger ramifications of the pulmonary artery, where it lodged and interfered very materially for a time with the function of a considerable part of the lung. About a week later the patient suddenly developed phlegmasia dolens in the left leg, caused, probably, by a thrombosis of the left femoral vein. The supposition that an embolus had lodged in a branch of the pulmonary artery was opposed by the facts that she had no cough, that there was no heart murmur, and that there was no previous or subsequent evidence of a pulmonary lesion, or of a localized pneumonia as a result of the infarction; yet Dr. Polk considered embolism the most probable explanation of the phenomena.

Successful Laparotomy for a Tumor formed by the Retention of Menstrual Fluid in One Horn of a Double Uterus.—Dr. Thomas narrated a case as follows: About eight months ago a Frenchwoman, thirty-nine years of age, who had been married for some years, but had, he believed, borne no children, entered his service in the Woman's Hospital, giving the following curious history. She said she had carried a fibrous tumor for sixteen years, which was as large as the head of a child a year old. It had not increased in size during this time, but at each menstrual period she suffered such dreadful torture that she had to be kept under the influence of opium. Life was a burden to her, and she wanted the tumor removed. Dr. Thomas examined her, and came to the conclusion that she was right; that she did have a fibrous tumor in the pelvis. She said the diagnosis had been made sixteen years ago, by M. Guéneau de Mussy, of Paris, in whose hospital service she was under treatment. She was seen with Dr. Thomas by Dr. Thomas Addis Emmet and Dr. Hunter, both of whom concurred in the diagnosis of a fibrous tumor, and in the opinion that, if the tumor were removed, the case would almost surely end fatally. The woman left the hospital, but returned again within five months, praying Dr. Thomas to operate. He told her he would not, for the operation would almost surely prove fatal. She left the hospital, to return again within two months, earnestly pleading that the operation should be performed—she suffered such intense agony at her menstrual periods. Dr. Thomas was at length prevailed upon to attempt to remove the ovaries, hoping that by stopping menstruation her suffering might be relieved, remarking at the same time that he had never seen a fibrous tumor behave as this one had done. About six weeks ago he cut down through the abdominal walls, and came upon a tumor which looked exactly like a fibrous tumor, of about the size of a child's head at birth. As he put his fingers upon it he was surprised to find an obscure and yet distinct sense of fluctuation, which had not been recognized through the abdominal walls. Instead, therefore, of going on with the original operation, he introduced a cannula and trocar into the fluctuating tumor, and, on withdrawing it, there immediately escaped a pint or a pint and a half of menstrual fluid. It had all the characteristics of that fluid, and there could be no mistake with regard to its nature. Dr. Thomas said he was very much puzzled, for the woman had been carefully examined; she had menstruated regularly, the uterus had been measured over and over again, and was found to measure two inches and a half. Taking hold of the lip in the wound of the tumor with a very strong tenaculum, and drawing it up into the abdominal wound, he passed his hand down and discovered the relations of the tumor, when at once it flashed across his mind that this was a uterus bicorporalis; that the canal in the left horn was free, and allowed the escape of the menstrual fluid from that side; that the canal in the right horn was not open throughout its entire length, and, consequently, obstructed the menstrual discharge from that side. He was now able to account for all the peculiarities about the case: First, the fact that the tumor had all the appearances of a fibrous tumor, and gave such agonizing pain at each menstrual period; secondly, the fact that the tumor remained at about the same size, not growing larger, as a fibrous tumor would do, although it was not at all impossible for the present tumor to have become larger by gradual distension; and, lastly, the fact that the patient had almost complete immunity from pain between the menstrual periods. Dr. Thomas now found himself in an unfortunate dilemma, for had he proceeded to remove the ovaries blood would have escaped from the wound into the abdominal cavity, and would almost certainly have set up fatal peritonitis or septicæmia He adopted a remedy which he found was, under the circumstances, the only one which could get him out of the difficulty. He caught hold of the uterus on one side, and Dr. Ward on the other, each with a strong tenaculum, dragged it firmly up into the abdominal wound, and passed a strong knitting-needle through the tumor and laid it on the abdominal wall; he then passed two sutures deep down, fastened the tumor in the abdominal wound, and left a tube in for drainage and to wash out the tumor. He remarked to the gentlemen who witnessed the operation that the woman would almost surely suffer from septicæmia, and she did suffer from a most violent attack; but, by having the cavity constantly irrigated with carbolized water, and by controlling the temperature with Kibbie's cot, she recovered. She was now menstruating from the left uterus, and a small quantity of blood was also escaping through the tube, which showed that menstruation was beginning to take place in the cavity of the uterus on the right side. He did not think he had ever before seen a surgical operation give so much relief as this patient had experienced. She was entirely contented and satisfied with the operation. He, however, was not, and for this reason: that the patient, being only forty years of age and menstruating regularly, and being married, was liable to become pregnant at any time, and, if this occurred, as the uterus enlarged this mass would be torn from its attachments to the abdominal wall, and death would almost certainly be the result. He would keep close watch of the case, and, should she become pregnant before she had gained sufficient strength to undergo a second operation, he would induce abortion. The second operation would consist in making an opening into the imperforate neck of the right horn of the uterus, thus allowing the menses to escape naturally, through the vagina, instead of, as at present, through the wound in the abdomen;

and then in severing its present attachments to the abdominal walls and allowing the uterus, now constituting a large mass, to drop back into the pelvis, where, under these circumstances, it would contract and return to its normal dimensions. One of the students who was present at the operation asked Dr. Thomas whether, if seminal fluid should enter the uterus through the abdominal wound, the woman would become pregnant. To this simple physiological question Dr. Thomas replied in the affirmative. A reporter of the "Medical Record," however, in an unofficial report of the case, had represented him to have spoken of the probability of future impregnation through the abdominal wound—a supposition which was preposterous.

Dr. M. D. Mann asked why Dr. Thomas did not push the trocar on down through the imperforate neck at the time of the operation.

Dr. Thomas replied that he did not wish to add to the already many dangers attending the case by doing that which could be done as well in the future.

Dr. Lusk remarked that in most cases of double uterus with hæmatometra one horn was rudimentary, and it was in the latter, as a rule, that the accumulation of blood took place.

Dr. Thomas agreed with Dr. Lusk's remark, but he thought that in his case the proportionate relation between the walls of the two horns was as he had represented: those of the right were thicker than those of the left, although the latter was the uterus through which the woman had been menstruating. Dr. Ward confirmed Dr. Thomas's statement.

Dr. Skene thought that if perforating the right uterus were postponed until the future, the attachments in the abdominal wall might, in the mean time, become severed, or that cornu become atrophied so that it would be difficult to pass an instrument through it. He therefore thought that, if the patient's health would admit of it, now was the time to complete the operation.

Dr. Thomas remarked that the patient's health was very low after the attack of septicæmia, and he was therefore afraid to complete the operation at present.

Dr. Skene asked with regard to the frequency with which menstruation took place in the rudimentary horn of a uterus bicornis.

Dr. Lusk replied that it occurred usually, the menstrual fluid accumulating in greater or less quantity in that cavity.

Death from Obstructed Respiration Thirty-six Hours after Prolonged Inhalation of Chloroform.—The President narrated the following case: Six weeks ago he was asked to see a case in consultation at Staten Island, in which a woman who was pregnant for the first time was said to have contraction of the pelvis. He found, as he thought, only slight and uniform contraction, a justo-minor pelvis, and believed it safe to let pregnancy go on to full term. He was sent for in consultation again at the time of labor, and found, when he reached the house, that she had been in pains eight hours. The membranes had ruptured and the vertex was presenting, but failed to engage in the brim. The woman was put under the influence of chloroform, and a thorough examination of the state of the pelvis was made before proceeding to apply the forceps. It was found much more contracted than had previously been supposed. The forceps was applied, but failed to effect delivery. Dr. Lee then attempted to perform version, but was unable to introduce his hand into the cavity of the uterus. The child was now evidently moribund, although the heart murmur could be faintly heard, and, believing that under the circumstances laparotomy would result in death to both mother and child, he proposed to perform craniotomy. The family, however, were extremely anxious to save the life of the child, and, wishing to do all that was possible, Dr. Lee asked that Dr. Isaac E. Taylor be added to the consultation. On his arrival, Dr. Taylor also attempted to extract the child with forceps, but found it impossible to do so. Craniotomy was then performed, and the woman was delivered with the greatest difficulty. She was under the influence of chloroform eight hours, but reacted fairly and felt well, but feeble, until thirty-six hours afterward, when she suddenly developed what was reported to Dr. Lee as an intense dyspnœa. Dr. Lee was telegraphed for, and found her in great dyspnœa, almost cyanosed, and suffering from general pulmonary hyperæmia of a most intense kind. All the larger and smaller bronchial tubes were full of mucus, which the patient expectorated with the greatest difficulty. She rapidly sank, and died within eight hours. No sign of any other disease, or of inflammation of the peritonæum or pelvic organs, could be detected. There was no evidence of renal or heart disease. The patient had been robust and healthy, a primipara, forty-one years of age. The President said he had never before had occasion to continue the administration of chloroform so long a time, and he had never before had a patient die from its effects with these symptoms. He asked for the opinion and experience of the members of the society with regard to similar cases.

Dr. P. F. **Mundé** narrated a similar case as follows: About six weeks ago he was called in consultation by a member of this society to aid him in delivering a woman who had borne children before without difficulty, but who in this labor had a faulty position of the head, and also a spastic contraction at the internal os. Repeated attempts at delivery with the forceps failed. While attempting to perform podalic version, Dr. Mundé was seized with an uncontrollable desire to cough, which became so violent—paroxysmal, indeed—as to oblige him to give up operating and leave the room. All the persons present felt the same sensation, and had to go into an adjoining room and throw the windows open. The patient's husband, who was connected with a large drug firm, said that the odor was that of chlorine gas, doubtless proceeding from decomposition of the chloroform. At this time the patient had been under chloroform for nearly four hours, and during the last hour the gas was lighted in the room. With a great deal of difficulty the child was finally extracted, and the patient made a good recovery. Although she was fully under narcosis for about six hours, she experienced no injurious effects whatever, on the lungs or otherwise, from this prolonged use of chloroform. Dr. Mundé had given chloroform many times, but had never witnessed its decomposition before.

Dr. **Lusk** said that the labels on the bottles containing Squibb's chloroform mentioned the liability to decomposition of the chloroform and the formation of chlorine gas, and gave directions how to test the chloroform in that respect. Dr. Lusk had used Squibb's chloroform for years, and had never in any case observed any bad results except those which were discoverable at the time of its administration. With regard to the President's case, aside from the effects of chloroform, a few years ago, when he reported a similar case of generally contracted pelvis, he looked up all the literature of the subject, and then found that when craniotomy was delayed until prolonged attempts had been made to deliver with the forceps, the results were unfavorable—the tissues between the head and the promontory would almost surely be injured, and the patient would die either of prostration or from blood poisoning after sloughing had taken place. He believed that in the extreme degrees of justo-minor pelvis, laparo-elytrotomy held out the best chance of a successful result.

HENRY J. GARRIGUES, M. D.,
B. F. DAWSON, M. D.,
FRANK P. FOSTER, M. D., *ex-officio*,
Committee on Publication.

A STATED meeting was held January 8, 1882, Dr. CHARLES C. LEE, President, in the chair.

HYSTEROTOMY CLAMP.—Dr. B. F. DAWSON presented a modification of his ovariotomy clamp, as an improvement on the uterine clamp devised by Dr. Thomas, and for which he claimed the following advantages in clamping the uterus for extirpation: First, that it compressed the uterine pedicle more uniformly, and was, therefore, less likely to give rise to sloughing; secondly, that it flattened the pedicle in a line with the abdominal wound, and thereby allowed closer coaptation of the lips of the abdominal incision between which the pedicle was afterward engaged. The instrument was a little larger than the ordinary ovariotomy clamp. He was led to have this instrument made owing to the fact that sloughing at the lower angle of the wound, septicæmia, and death, arising, he thought, from irregular compression of the pedicle and pressure upon the wound by Dr. Thomas's instrument, took place in a case of uterine extirpation which he recently reported to the society. In offering the instrument he did not wish to reflect upon Dr. Thomas's, but simply showed it as an improvement.

LANDMARKS IN THE OPERATION OF GASTRO-ELYTROTOMY.—Dr. W. M. POLK showed a preparation illustrating certain points in the surgical anatomy of the parts concerned in this operation. [His remarks, more fully elaborated after the meeting, will be found on p. 449 of this number of the Journal.]

Dr. W. R. GILLETTE said that he was very much interested in the facts which Dr. Polk had stated, and he thought they would do much toward bringing this operation again into repute. His experience in the case in which he performed gastro-elytrotomy on the living subject, a description of which had before been given to the society and to the profession, went to corroborate the points raised by this post-mortem operation. If he remembered correctly, Dr. Thomas directed that the peritonæum should be hugged rather than the anterior pelvic wall, which guide Dr. Gillette followed. Neither the ureter nor the bladder was injured. He believed the operation had been performed only eight times upon the living subject—three times by Dr. Skene, twice by Dr. Thomas, once by himself, in this country; once by Dr. Edis, and once by Dr. Himes, in England. Of the six operations which had been performed in this country, in four the bladder and ureter had been injured. Hæmorrhage had not occurred in any of the cases on record, and he doubted whether it was necessary to use the actual cautery. Could such directions with regard to anatomical landmarks be given as would enable us to avoid the danger of injury to the bladder or ureter, he thought the operation could, and certainly should, be reclaimed from the disrepute into which it had fallen.

Dr. POLK said he could give no special reason for using the actual cautery except that it had been advised by Dr. Garrigues, and he thought it was a wise precautionary measure.

Dr. E. NOEGGERATH said that it had always been a question heretofore as to what path should be taken in opening into the vagina in this operation, but, after Dr. Polk's very clear demonstration, he thought that in the future no one would hesitate to follow his instructions. He had not the impression which some had, that the operation had fallen into disrepute, and, if it were not performed as often as it ought or as often as he wished it to be done, it was simply because all operations pertaining to the peritoneal cavity had been undergoing a revolution. The question with regard to gastro-elytrotomy, Cæsarean section, and other operations about the peritoneal cavity, would, after a time, be settled and take their proper place in gynæcological surgery.

MONSTROSITY, PROBABLY COMPOSED OF THE HUMAN HEART.—Dr. NOEGGERATH, in presenting this specimen, with the permission of Dr. J. Kucher, to whom it belonged, stated that he, and probably all the members of the society, had never seen a similar one. He would like their opinion with regard to its nature. The patient from whom the specimen was taken was always healthy up to the time of her marriage, May 19, 1878. May 25th she considered herself pregnant, and expected to be confined in the first week of March the following year. March 15th preparatory labor pains commenced, and continued four days, then ceased until the 29th of March, when labor commenced in earnest. She was attended by Dr. Glück. On April 2d Dr. Noeggerath saw the patient in consultation, and, the os externum then being dilated, it could at once be determined what had been the cause of delay. He confirmed the diagnosis of Dr. Glück that the case was one of hydrocephalus. The fontanelle was opened at once, and a large amount of liquid escaped, but the bones of the head were quite solid and did not collapse. The cranioclast was introduced, the hardest bones were crushed, and the child was extracted. No injury was done to the child except to the upper bones of the cranium, the remainder of the body being extracted entire. After the removal of the child the uterus continued in an atonic state, so that half an hour later Dr. Glück had to introduce his hand and remove the placenta, which came away entire, and nothing unusual could afterward be found in the uterus. After confinement septic endometritis developed, which required the closest attention. It was finally controlled by the use of quinine and injections of carbolic-acid solution, which were given regularly every three hours from the 2d to the 22d of April. The injections were administered through a tube carried into the uterus a distance of four inches. During these frequent handlings of the uterus it was noticed repeatedly that the body of the organ, although well contracted, was enlarged and extended up on the right side as far as the liver. On the eighth day after delivery Dr. Glück noticed, while giving the injection, that a movable body was encountered by the end of the tube in the uterus, which, while the water was flowing away, flapped against the tube. At last, on the 21st of April, a mass was seen protruding from the vagina, which was removed, and constituted the specimen which Dr. Noeggerath now exhibited. It was almost sixteen inches long and four inches wide in its broadest section. The bulk of it was evidently composed of membranous tissue, but at one part it felt solid, and appeared to the sight and touch like uterine tissue. When he first saw the specimen, Dr. Noeggerath supposed it to be the result of one of those rare cases of dissecting metritis in which pieces as large as this of true uterine tissue had been expelled; but, on examining the specimen microscopically, he found that it possessed no uterine tissue, no uterine glands, but, instead, it contained striated voluntary muscular fibers, and cellular tissue with large and small lymph spaces and vessels. The specimen had been examined by two of the best microscopists of the city, both of whom agreed with Dr. Noeggerath that it contained muscular tissue. This muscular tissue possessed peculiarities distinguishing it from ordinary muscular tissue. It probably contained no sarcolemma. The muscular fibers branched and anastomosed with each other, being divided into segments by lines of cement substance, and the nuclei were in the substance of the fiber itself. Such peculiarities were to be found only in the muscle of the heart. The specimen was probably a monstrosity, of which only the heart, blood-vessels, and some cellular tissue had been formed.

Dr. A. Jacobi, being requested to express his opinion of the specimen, stated that there was no opinion to be expressed; that certain statements had been presented which claimed as a fact that this specimen contained heart structure and nothing else, for its muscular fibers were said to possess all the peculiarities of the muscular fiber of the heart. He was sufficiently acquainted with the literature of this subject to be able to say, without further investigation, that there was no such case on record. The monstrosities which resembled this to a certain extent went either by the name of amorphus or by that of acormus. Of the acardiac monsters, Dr. Lusk presented a specimen to the society about four years ago. In that case the chest of the fœtus was fairly developed, there were indications of the extremities, and the vertebral column was partly developed. In the amorphous variety the trunk and skin might be present without the head; in the acormous variety there was simply an imperfectly developed head. In the museum of the veterinary school at Berlin there were, he believed, about two dozen specimens, mostly taken from the cow, of amorphous and acormous monsters. They answered to the description which he had just given, and he believed that in every case they were produced in twin pregnancies, one or two perhaps in cases of triplets. Dr. Jacobi did not remember any instance in which only one kind of tissue had been found, certainly none in which only heart tissue had been found. Both the trunk and the head, however, had been found in the absence of all other parts of the body.

Battey's Operation.—Dr. A. S. Clarke presented the ovaries which he removed from a patient about two weeks ago. She was unmarried, about twenty-six years of age, and had always suffered greatly at her menstrual periods, and in a less degree during the intervals. She finally became unable to walk, stand, or sit upright; her stomach had become very irritable, and her condition such that she was ready to undergo any operation offering her a prospect of relief. Before proceeding to remove the ovaries, Dr. Skene was called in consultation. The right ovary was of double the size of the left, and contained two cysts which were filled with serous fluid. The fimbriated extremities of the Fallopian tubes, up to the ovaries, were also removed. The operation was very easily and simply done. The patient did perfectly well, and to-day, the eleventh after the operation, was comfortable. The pain in the pelvic region had entirely disappeared, and she was able to take food freely, and had had no nausea since the third day after the operation. Before the operation she could not tolerate opium in any form, but hypodermic injections of Magendie's solution were used freely during the first few days after the operation, and were discontinued only because all pain had disappeared. A menstrual-like flow took place the third day after the operation, and continued four days. The abdominal incision was made about four inches in length. At the suggestion of Dr. Skene, a pillow was placed under the hips, elevating the pelvis well; and a large sponge, wrung out of hot water, was placed within the abdominal cavity, and the intestines were thus kept out of the way of the operator's hand. In reply to a question, Dr. Clarke stated that Listerism was not employed, but the sutures had been boiled for some hours in wax, carbolic acid, and salicylic acid. The sutures were removed on the fifth day, and union had taken place by first intention throughout the wound.

Dr. NOEGGERATH was astonished that Dr. Clarke had first stated that Listerism was not observed, and had afterward stated that the sutures had been boiled in wax, carbolic acid, and salicylic acid, for the chief danger of the operation lay in the suture, and when this was disinfected the most important part of Listerism had been observed. The spray, which Dr. Clarke said he did not use, did not by any means constitute the whole of Listerism.

"TACHES MÉNINGITIQUES" IN THE DIAGNOSIS OF CEREBRO-SPINAL MENINGITIS.—Dr. JACOBI referred to the sign called by the French *taches méningitiques* as an important aid in the diagnosis both of cerebral and of cerebro-spinal meningitis, particularly the latter, and related a case in illustration. His attention had been directed to the difference in the appearance of this sign some years ago, and he had mentioned it on several occasions publicly, but did not remember to have seen it referred to either in the journals or in the text-books. Cerebro-spinal meningitis, however, was again raising its head in this city, and he thought, since the disease was difficult of diagnosis in many instances, especially in the first stage, that it was important to speak of it again. He had seen three cases of cerebro-spinal meningitis within the last three weeks—one in hospital and two in consultation. In the last one, which he saw last night, he was told that the child had been seen by some one who made the diagnosis of diphtheria. Dr. Jacobi, however, could see no signs of diphtheria. The boy, seven years old, was delirious, and, lying in his bed, called constantly for his nurse. The pulse, he was told, had been up to 140, but when he saw the child it was about 100 and regular; but when the boy became restless it was 120 or 130. He was told the pupils had been small, but he found them regular and of tolerable size, and respondent to light. There were no unilateral symptoms pointing to disease of the brain or spinal cord. Dr. Jacobi thought he discovered slight sensitiveness about the spine, particularly the upper portion, but he might have been mistaken. The illness commenced suddenly the night before; the child had vomited, which, however, was attributed by the family to his having eaten excessively of cakes, sweets, etc., during the holidays. There was fever, the temperature ranging from 103° to 104° F. There was no other symptom. It was further stated that the child was naturally very restless, and for this reason a surgeon had been consulted a year previously, who immediately proceeded to remove the child's prepuce, but the nervousness was not relieved. Dr. Jacobi then referred to the existence of the sign which had led him to mention the case; that was, the *tache méningitique*, or red mark, which appeared within ten seconds or a minute or two after slight friction of the skin. He did not remember to have seen a case, either of cerebral or of cerebro-spinal meningitis, in which he was unable to discover this sign. It was true, however, that it might be found now and then in cases of typhoid fever, particularly cases in which there was a good deal of vaso-motor irritation, and it was also found in some severe cases of pneumonia, and in persons of hysterical disposition, in a fairly healthy condition, whose nervous system, particularly the vaso-motor, was very irritable. In those cases it became no longer a mark of meningeal inflammation, but one of vaso-motor excitability. Vaso-motor hysteria, however, seldom existed in children, although he had published cases years ago in the "American Journal of Obstetrics," and in the present case, moreover, there were delirium and fever, but no other symptoms. Dr. Jacobi found the *tache méningitique* very marked on the forehead in the present case, and also on the right lower extremity; less marked on the left. Had it been due simply to a nervous cause without any local influence, he would have expected the mark to be equally developed on both lower extremities. In tubercular or cerebral meningitis this mark made its appearance only toward the close of the disease, after the diagnosis had been made for a week or longer, and the case was approaching its end; when the pulse was increasing in rapidity, and the temperature rising, then it was that the so-called meningeal spot would be found. But in cerebro-spinal meningitis the spot could be made to appear in the beginning of the disease. For many years Dr. Jacobi had failed to discover it early in the disease in but few cases, and, when he had not been able to find it in a given case, he considered it very probable that the patient was not suffering from cerebro-spinal meningitis. He had seen the patient again to-day, and there were now further evidences of cerebro-spinal meningitis, and the meningeal spot had become equally marked on both lower extremities, a fact which one would expect to take place as the disease became more fully developed.

HENRY J. GARRIGUES, M. D.,
B. F. DAWSON, M. D.,
FRANK P. FOSTER, M. D., *ex-officio*,
Committee on Publication.

A STATED meeting was held January 17, 1882, Dr. CHARLES C. LEE, President, in the chair.

Dr. T. G. THOMAS reported the further history of two cases narrated at previous meetings. In the case in which he removed the kidney about two months and a half ago there soon began to develop all the symptoms of commencing Bright's disease. In the course of six weeks the urine became albuminous, contained tube casts of not a very bad character, and hyaline and some granular casts. The quantity of urine was normal. Under the patient's eyes was that fullness, caused by œdema, which was so characteristic of the nephritis following scarlet fever. Dr. Thomas felt fearful lest the other kidney should become diseased and cause death, but he was now glad to be able to say that after these signs had existed two or three weeks the urine cleared up, the albumen and casts disappeared, and the patient had left the hospital, perfectly well. It seemed to him that the case demonstrated very perfectly the views held by Dr. Johnson, who, about twenty-five years ago, wrote a work upon the diseases of the kidneys, in which he expressed the thought that a great many cases of Bright's disease had their origin in the extraordinary work called for on the part of the kidneys because of the skin, for example, failing to perform its proper function, or because of some poisonous element existing in the blood. It seemed that in this case, one of the kidneys being removed, the other was called upon suddenly to do double work; congestion followed, the tubules cast off their investing epithelium, and other symptoms, already mentioned, made their appearance.

In his narration of the case of uterus bicorporalis, at the second meeting previous, Dr. Thomas said he did not know that he had ever before performed a surgical operation which gave so much relief—not only removing imprisoned menstrual blood from an enlarged uterus, but likewise giving escape to menstrual blood which otherwise would have continued to accumulate. If the gentlemen who had read his first report of the case were to see the patient to-day, however, they would wonder how he had misrepresented so much. The menstrual blood at each period since the operation had escaped from both uteri—in the case of one through the vagina, in that of the other through the abdominal opening. The flow from the vagina took place two or three days before that from the abdominal opening, the explanation being, probably, that the enlarged uterus required that length of time to fill to overflowing. During her present menstruation the patient was taken with pelvic cellulitis on the left side, and in the broad ligament of that side there was a phlegmon as large as a duck's egg, so that, instead of enjoying the great relief before mentioned, she was now suffering a great deal of pain. He thought that the cellulitis was probably due to the presence of the glass plug in the uterine cavity, and consequent exposure to the atmosphere—the effect being very much like that caused by introducing a glass plug through the vagina into the cervix.

Persistent Hymen; Abnormal Coitus.—Dr. Thomas narrated the following case as illustrative of the extreme unreliability of evidence in connection with cases of a medical character brought to a court of law: A German lady, belonging to the upper walks of life, had been married eight years, but had never become pregnant. Being dissatisfied, she consulted him with regard to the cause of her sterility. In reply to his questions she said her menses were perfectly normal, she had very little leucorrhœa, and the only symptom of which she complained was a good deal of backache. A vaginal examination was proposed, and on attempting to introduce his finger Dr. Thomas found it impossible to do so on account of the presence of an unruptured hymen. The hymen was perforated by an opening only barely large enough to admit a common-sized lead-pencil. The woman, however, again affirmed that she had been married eight years, and said that her husband had had intercourse with her regularly at least once or twice a week, and that there had been nothing abnormal about it whatever. When he explained to her the condition of things she laughed and said it was impossible; she could not still be a virgin. Her husband, whom she was requested to send to the speaker's office the next morning, came, and he also laughed when informed that his wife was a virgin, and told Dr. Thomas in a pleasant sort of way that he was a *farceur*. He was about thirty-eight years old, of good figure, and said that his sexual vigor was perfect; before his marriage he had been something of a man of the world, and knew very well what it was to have intercourse with women; he had been married eight years, had had intercourse with his wife regularly, and in a perfectly normal way. Having now placed himself in such relations to the man that he would have to prove his position, Dr. Thomas requested him to bring his wife to his office the next day, which he did. Placing the woman in position, Dr. Thomas separated the labia, and showed to her husband the exact state of things. He was amazed, and could only reiterate that intercourse had been regular during the eight years of their married life. It was proposed to remove the hymen and put in a glass plug; but the husband desired him to wait a week, for he thought that in the mean time he could make all right. At the end of the week, however, the man returned, and said he now recognized that he had never had intercourse with his wife in the proper way, but how he had been deceived during these eight years he could not possibly understand. The woman was afterward etherized, the hymen was removed, and a glass plug was introduced. Her husband said that now everything was changed greatly for the better. The point of interest in the case was a medico-legal one.

URETHROCELE OF LARGE SIZE, WITH AN ULCER.—Dr. THOMAS also narrated a case as follows: A negress entered his service in the Woman's Hospital, complaining of a large tumor in the vagina. She suffered a great deal of discomfort on urination, and from nearly all the symptoms of chronic cystitis. She got up at night repeatedly to pass urine, and had to evacuate the bladder every hour during the day. The urine was always more or less decomposed. The patient suffered so greatly during urination that she had acquired that haggard appearance of the countenance so frequently seen in patients with chronic cystitis. Upon passing his finger into the vagina, Dr. Thomas found the condition of things which he illustrated upon the blackboard; the vaginal canal was occluded by a tumor of about the size of a small hen's egg, which could be compressed, but with a good deal of difficulty. His first impression was that the tumor belonged to the anterior wall of the vagina, but further examination showed that it was purely a urethrocele. With one finger under the mass in the vagina he passed a sound into the urethra, when he at once detected a large cavity, the walls of which were composed of this vaginal tumor. Lifting it up so as to evacuate it of its contents, there came out decomposed, ammoniacal urine, and a great deal of mucus. Having determined that the case was one of urethrocele, there was but one thing to be done—namely, to remove the whole portion of the urethral wall which constituted the tumor, and bring the lips of the wound together with sutures. The mass removed looked like scrotal tissue, and was very thick—as thick as the walls of a bladder affected by chronic cystitis. On the ninth day the sutures were removed, and the result was entirely satisfactory, the urethral canal being perfectly straight. In the most dependent portion of the scrotal-like tissue which was removed there was an ulcer with ragged edges of about the size of a three-cent piece. The mucous membrane lining the urethrocele was in a condition of chronic inflammation, being thickly covered with decomposed mucus, and containing vessels considerably enlarged.

Dr. T. A. EMMET remarked, with regard to the first case narrated by Dr. Thomas, that several years ago he reported a case to the society in which the hymen, perforated only by a very small opening, was so strong that it could not be ruptured except by cutting. Intercourse in that case, however, might have taken place without difficulty, since the hymen, which was non-resistant, could be carried up into the vagina some distance.

Dr. THOMAS remarked that the hymen in the present case was perfectly resistant, and could not be carried up into the vagina.

Dr. P. F. MUNDÉ said that Professor Gustav Braun, of Vienna, had reported three cases of pregnancy occurring in unmarried ladies in whom the hymen was entirely perfect. In two of the cases the girls, having sat on the lap of a gentleman, claimed only to have experienced a sensation of moisture about the genital organs, but that, so far as they knew, intercourse had not taken place. In one of these cases, however, it was learned that the young man's penis was decidedly smaller than the average, and connection might therefore have taken place without rupture of the hymen. There were other similar cases on record, but he did not remember of any in which intercourse was continued for eight years, the hymen still remaining intact.

Dr. ROBERT WATTS remarked that a case had been reported by Dr. Parker in which the patient, a woman who had been married for some time, had an impervious hymen, although connection had taken place frequently. The urethra had been penetrated instead of the vagina.

Dr. **Thomas** again remarked that he mentioned the case simply in its possible medico-legal bearings, and not as a new fact in gynæcology. It was well known that some women, who had been prostitutes for ten, fifteen, or twenty years, still had an unruptured hymen, the membrane, which was tough but elastic, being pushed up before the male organ during connection. He had had occasion to divide the hymen to allow of the passage of the child's head at labor.

The **President** remarked that he also had had occasion to divide the hymen at labor.

Dr. **Mundé** asked if the converse of this case was true—namely, that the absence of a hymen and the existence of every appearance about the vulva and vaginal orifice of a natural confinement at some previous time were positive proof that a woman was not a virgin. He had had such a case recently, and, although the patient, an unmarried woman forty years of age, positively denied intercourse and pregnancy, he still believed in his first impression. The vagina would admit the largest-sized cylindrical speculum without the slightest pain, there was not the least trace of a hymen, and, had not the woman positively affirmed that she was a virgin, he would not have supposed for a moment but that she had borne children.

Dr. H. T. **Hanks** said a Scotch girl, sixteen years of age, who came to the Demilt Dispensary, had complete prolapsus of the uterus. He sent her to Dr. Thomas's clinic. Had she been a woman thirty years of age it would have been supposed at once that she had borne children.

Dr. B. F. **Dawson** said he had seen a similar case to that of Dr. Mundé, there being also prolapse of the vagina. He believed he might have introduced his fist into the vagina without difficulty—the perineal structure was so greatly distended. Being asked by the President whether he had any positive proof that the patient was a virgin, Dr. Dawson replied that he had not, except her statement to that effect, and he had every reason to believe she told the truth.

With regard to Dr. Thomas's second case, Dr. **Emmet** remarked that he had never seen the sac of a urethrocele sufficiently large to hold half an ounce of fluid. He, however, had performed the operation which was practiced in this case, and with perfect results.

Dr. **Thomas** remarked that he would not convey an exaggerated idea of the capacity of this sac. He did not think it would hold over half an ounce, but it was to be remembered that it did not require a very lage mass to block the vagina, and in this instance, as said before, the vaginal canal was completely occluded. The walls of the urethrocele were very thick.

Dr. **Emmet** asked if this cavity might not have been partly formed by dilatation of the urethral canal, from the tissues being forced into it from behind as the head of the child advanced during the progress of labor, so that some of the fibers of the urethral tract became ruptured, but left the fibers in the vaginal wall intact. A weakened condition would then exist, which would be completed by a loss of the perinæum. He had a similar case some years ago, and was unable to account for its origin in any other way.

Hot Water for the Arrest of Hæmorrhage in Ovariotomy.—Dr. **Emmet** said he removed an ovarian tumor a few weeks ago from a patient in whom acute peritonitis existed at the time of the operation, and, as the adhesions, which were extensive, were recent, most troublesome oozing of blood occurred when they were separated. It occurred to him to wash out the abdominal cavity with hot water. Accordingly, a basinful, as hot as the hand would bear, was thrown in, the jet being directed upon each bleeding point in succession, and the effect which it immediately produced was surprising. It not only arrested all hæmorrhage, but all the lymph was washed out, and the color of the membrane was completely changed. The patient, however, never entirely recovered from the severe shock of the operation, and died. At the post-mortem examination not a particle of fluid was to be found in the abdominal cavity. Just sufficient adhesive inflammation had been excited to make the parts adhere loosely to each other. Dr. Emmet had also recently performed ovariotomy in another case, in which the sac burst, and the fluid contents, which were exceedingly thick and tenacious, poured out into the abdominal cavity. Knowing from experience that it was impossible to remove this glutinous material with the sponge, he removed the tumor, and with the jet of Davidson's syringe from a basin of hot water he was able to float this material out, and to wash out the abdominal cavity thoroughly. The patient recovered without a bad symptom. Patients almost always died after this material had escaped into the peritoneal cavity; but he narrated the cases more especially to show the efficacy of hot water in arresting the oozing of blood, which was sometimes very dangerous and difficult to check in the operation of ovariotomy.

Dr. **Hanks** said that a year and a half ago he performed an ovariotomy in the country, in which case the walls of the cyst were very tender and ruptured in several places, and the contents escaped into the abdominal cavity. Being quite thick—thicker, probably, than in Dr. Emmet's case—the fluid could not be absorbed by the sponge, nor would warm water dissolve it. He was compelled to turn the patient on her side, and with his hand remove as much of it as he could.

Dr. **Thomas** said that about ten years ago he saw the late Dr. James L. Brown make use of warm water to wash out the colloid material of an ovarian cyst which had escaped and disseminated itself throughout the abdominal cavity. Warm water was poured in while the patient lay on her back, and she was then rolled from side to side, after which the water was allowed to flow out. That patient died, but it was probable she would have died no matter what method had been adopted. Dr. Thomas said he had never had a case end in recovery in which the solid colloid material of an ovarian cyst had escaped by bursting into the abdominal cavity a week or more before the operation. Within three or four weeks he had performed ovariotomy upon a patient in whom the cyst had burst before the operation, and the colloid material had become disseminated throughout the abdominal cavity and could not be removed. The patient died.

Pregnancy complicated with Uterine Fibro-myomata; Tympanites relieved by the Knee-Chest Posture.—The case was narrated by Dr. **Hanks**, in whose practice it occurred. The patient, thirty-eight years of age, married, had menstruated last in April, 1881. When Dr. Hanks was called to see her, in July, he found her rolling from side to side, suffering from extreme pain in the region of the pelvis. Previous to her marriage she had never had any uterine trouble, and had consulted but one physician, which was only a few weeks before Dr. Hanks saw her. Examination revealed a uterus which was enlarged to about the size of the third month of pregnancy, the cervix was high up in the region of the pubes, and what seemed to be the body of the uterus lay back in a retroverted position. On the right was what appeared to be an enormously enlarged ovary, exquisitely sensitive to manipulation. Bimanual examination showed a hard tumor above the uterine body, but attached to it. He diagnosticated retroversion of the uterus with a fibroid tumor in its walls, and probably an enlarged and prolapsed ovary, if not an ovarian cyst. Dr. Walker was called in consultation, and confirmed his diagnosis with regard to retroversion and a fibroid tumor of the uterus above; they were not certain with respect to the nature of the tumor below. The patient was placed under the influence of chloroform, the retroversion was reduced, and the diagnosis was then made of two fibroids of the uterus, probably interstitial, one about three inches long, two and a half wide, and one and a half thick; the other, somewhat smaller in size, to the right and near the pubes. The patient was soon able to be about the house, and was comfortable until the 8th of October, when acute inflammation took place in the upper fibroid, which at this time was above and a little to the right of the umbilicus. The inflammation was attended with a good deal of pain and uterine contractions, which Dr. Hanks supposed, of course, would result in miscarriage. The os was dilated and soft, and the child's head could be distinctly felt through the membranes. Inflammation in the fibroid, however, subsided, but enormous tympanites developed, accompanied by extreme pain. During three days from the commencement of the attack, ninety drops daily of Magendie's solution had to be given to relieve her suffering. Almost every means was tried for the reduction of the extreme tympanites, but without success until he had the patient assume the knee-chest position. The uterus then falling forward, and relieving the intestine of pressure, gas escaped freely, and complete relief was experienced within fifteen minutes. The patient then did well, being fairly comfortable, until the time of her confinement, which took place a week ago. The labor was somewhat slow, and the head was extracted through the lower strait by forceps without an anæsthetic. It was probable, however, that delivery would have taken place successfully without instrumental assistance. Hæmorrhage was not excessive. Some symptoms of septicæmia developed, but subsided, and the patient was now comfortable and doing well. The fibroids could be felt distinctly at the present time.

Dr. Thomas remarked that he had for a number of years placed patients in the knee-chest position for the relief of flatulent colic, and the efficacy of the method was somewhat remarkable. The intestines fell forward and gas began to escape almost immediately, giving the patient as great relief from her sufferings as if opium had been administered freely. He considered the point of sufficient importance to justify him in asking for the experience of the members of the society with regard to it.

Dr. Emmet said he had employed the method, and had found it very useful.

Dr. J. B. Hunter said he reported a similar case to the society last year. The patient was a negress, with apparently three large fibroids, one larger than a child's head. No hæmorrhage occurred at labor, from which she made a perfect recovery.

Dr. Mundé said he had seen two cases in which the placenta failed to come away for want of proper uterine contractions at its point of attachment, which was in the neighborhood of the fibroid, and required to be removed with the hand. No hæmorrhage occurred.

The President remarked that he had reported two cases of fibroid tumors of the uterus, in both of which dangerous hæmorrhage occurred at confinement, in one proving fatal. Every means, both intra-uterine and extra-uterine, were taken to induce contraction of the uterus, but the fibroid growth within its walls made all efforts unavailing. Hæmorrhage, he thought, was a danger greatly to be feared in these cases, and Dr. Hanks's and Dr. Hunter's cases were certainly exceptional in this respect.

PROLAPSUS OF THE WHOLE VAGINAL CANAL ONE YEAR AFTER CONFINEMENT, WITHOUT RUPTURE OF THE PERINÆUM.—Dr. MUNDÉ related the case for the purpose of eliciting the opinion of the members of the society with regard to the condition present. A married woman, who had borne four children, the youngest a year old, consulted him for what she called falling of the womb. On simply separating the thighs, the vulva gaped widely in a perfect circle, the red, hyperæmic mucous membrane of the vagina protruded from the external orifice, and without the slightest difficulty he was able to pass his fist up to the vault of the vagina. The appearance of the parts was as if the woman had just been confined and involution had not yet taken place. The uterus was of normal size, and in its normal position. Seven months later he saw the patient again, and the condition of things had not changed. He had never before seen a similar case. Among German observers, Pfannkuch had reported, he believed, three cases, and Cohnheim, of Heidelberg, one, which they called non-puerperal dilatation of the vagina; butthey differed from this one in the fact that hæmorrhage had occurred, and the blood, drying, had agglutinated the vulvar hairs together, a clot forming in the vagina behind and greatly distending it. Dr. Mundé's case was in no sense a cystocele or a proctocele; nor did there seem to be any general relaxation of muscular tissue. The woman was of florid complexion, and healthy, and complained simply of a bulging between the thighs when she walked. The perinæum appeared to be perfect. The case differed entirely from the numerous ordinary cases of relaxed vulva and vagina.

Dr. EMMET remarked that there might be great distension and partial severing of the tissues from the pelvic fascia at the vaginal outlet, and perhaps a partial laceration of the tissues on the vaginal side, without tearing through the proper perineal integument. When the attachment to the fascia at the vaginal outlet became separated, the effect would be very like the loss of the running-string in the mouth of a bag.

Dr. MUNDÉ replied that there was no apparent laceration whatever, and he did not know how one could determine that there had been severing of the perineal muscles unless there was an apparent rupture. Moreover, the vulva in this case was, so to speak, in a state of subinvolution.

Dr. THOMAS said there was a large class of cases similar to the one mentioned by Dr. Mundé, in which the vagina was dilated, the perinæum, though perfect in appearance to the eye, being entirely worthless—yielding to pressure by the hand like so much soft rubber; the labia majora being relaxed, and all the parts resembling, except in color, their appearance in the puerperal state. He thought we should not be able fully to understand this condition until we recognized not only that the uterus was in a state of evolution during pregnancy, but that the muscular structure of the vagina and perinæum, and associated parts, underwent a like change. He could see no reason why they should not undergo this change, and, if in some instances they failed to return to their normal state after childbirth, failed to undergo involution, it was not surprising, since we knew that this was very often true of the uterus itself. He knew of no other way to account for Dr. Mundé's case.

Dr. HANKS asked Dr. Emmet how he would treat such a condition as he had mentioned, in which the concealed muscular fibers of the perinæum were greatly distended or ruptured, causing relaxation of the parts.

Dr. EMMET replied that he knew of no other means than to bring the posterior walls as nearly together as possible, and pass sutures. The result of the treatment under any circumstances would be uncertain.

WHALEBONE LIGATURE.—Dr. EMMET asked whether any members of the society had used the new kind of ligature prepared from whalebone. He had intended to use it to-day in a case of ovariotomy, but upon soaking it in water it became greatly swollen, and so weakened that it was unreliable for the purpose of tying the pedicle of an ovarian tumor. It was, however, very strong in the dry state. He had since ascertained that the specimen which he had examined was an imperfect one. He believed that Dr. Skene, of Brooklyn, had used it in a case of laceration of the cervix.

SLOUGHING SARCOMA OF THE UTERUS; SUPPURATIVE SALPINGITIS; EXTENSIVE THROMBOSIS.—Dr. W. T. LUSK presented the history of the case, with specimens. [See the April number of the Journal, p. 340.]

ABNORMAL POSITION AND FORMATION OF THE HEART IN AN INFANT.—The specimen was presented by Dr. DAWSON, and was removed from a female infant, five months and twenty days old, who died in the New York Infant Asylum, in the service of Dr. J. Lewis Smith. The history which Dr. Smith had given of the case was that at birth the child was weak, the heart's action was always feeble, a systolic murmur was heard over the anterior surface of the chest, less loud behind. The respiration was markedly labored after nursing. The anterior wall of the chest was unusually rounded and prominent, evidently due, as proved at the post-mortem, to the abnormal size and location of the heart. At the autopsy the heart was found a little to the right of the median line, under the lower third of the sternum. In its fresh state it was somewhat square in form, and measured two and three quarters inches across and two and a quarter vertically. It was interesting, first, as showing a somewhat rare malformation of the heart; and, in the second place, as partially accounting for the condition of the child during life. The pulmonary artery had its origin in the left ventricle, and the aorta in the right. The foramen ovale was perfectly patent; there was no trace of a septum. The lungs were collapsed, and Dr. Dawson thought the deficient aëration of the blood was due rather to that fact than to the abnormal condition of the heart.

Dr. W. R. GILLETTE remarked that in a number of cases of displacement of the heart, reported in the journals recently, there was found to be displacement of other viscera also, and asked whether such was the case in this instance.

Dr. DAWSON replied that the other viscera were not examined, and remarked that patency of the foramen would not necessarily cause the cyanosis and the atelectasis of the lungs.

HENRY J. GARRIGUES, M. D.,
B. F. DAWSON, M. D.,
FRANK P. FOSTER, M. D., *ex-officio*,
Committee on Publication.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

A STATED meeting was held March 2, 1882, RICHARD A. CLEEMANN, M. D., in the chair.

MECHANICAL DILATORS IN GYNÆCOLOGICAL PRACTICE.—Dr. C. H. THOMAS had used the Ellinger dilator, and had been very much annoyed by a bad fault in the form of the blades. As soon as the instrument was opened the uterus showed a strong tendency to slip away from the dilator. This was due to the form of the outer edges of the blades, which gave the dilator a wedge shape, with a difference of ten millimetres between the measurements of the base and those of the apex. Conicity in uterine dilators was a dangerous quality, the instrument tending to slip in the direction of the base of the wedge. If the dilator when in use slipped out of the grasp of the cervix, it was likely to produce laceration; while if it slipped inward, as most dilators tended to do, it would wound the fundus uteri. ═══ Dr. B. F. BAER made the following remarks: "I am glad that Dr. Thomas has alluded to some of the defects of Ellinger's dilator. I have found the same objections, and have tried to overcome them by having an instrument so made that the mechanism by which the blades are separated is placed in the blades themselves, close to their points, and entirely concealed when they are in contact. This gives great power to a *small* instrument, and, as the outer surfaces of the blades are perfectly parallel and can not feather, because of the position of the separating mechanism, the instrument does not slip out. I do not now need a tenaculum to hold the cervix in place, which is a great advantage. I have also had the handles bent down so that I can see just what the instrument is doing, and by a screw, so placed that it can be worked on the left, with the left hand, while the right hand holds the handles and separates the blades, the dilatation can be done slowly and deliberately, with less tendency to slip out, and with less pain than with the old instrument. With regard to the result of dilatation of the cervix for the cure of sterility, my experience is based upon the treatment, by dilatation with the steel instrument, of more than two hundred women who were sterile because of a defect in the caliber of the cervical canal, either from stenosis or flexion, resulting from imperfect development. Where the sterility was the result of obstruction, dysmenorrhœa was almost invariably present. This experience leads me to the conclusion that, although the canal is made so patulous by dilatation as to markedly improve the dysmenorrhœa, and in many cases to cure it permanently, the sterility remains in the vast majority of cases if the patient has been married more than three years before coming under treatment; and, if she had attained the age of twenty-six or twenty-seven years before marriage, then, though she come under treatment immediately afterward, she will very likely be sterile. This will apply to the great majority of cases, but not to all. I think the reason may be stated as follows: The long-continued hyperæmia of the uterus, the result of dysmenorrhœa, which probably existed from puberty, and especially from the non-fulfillment of the sexual function by conception, gives rise to such changes in the histological elements of the uterus that, instead of the organ being muscular, and, therefore, possessing its natural resiliency, elasticity, and suction power, it is hard, fibrous, and non-elastic. The mucous membrane lining the cavity also becomes so changed in its character that, if fecundation should take place, there is not a proper nidus furnished for the reception of the ovum, and it passes off without forming an attachment. The tissues of the Fallopian tubes are likewise changed, and the tubes narrowed in consequence. This might explain the persistence of the sterility after the dysmenorrhœa has been relieved by dilatation of the cervix. ═════ Dr. J. C. Da Costa had modified the Ellinger dilator by having the blades made very stiff and with a knob at the extremity, as in the uterine sound. When necessary, he made use of counter-pressure over the fundus. In some cases he used a small instrument first, to enable him to introduce the more powerful one through the internal os. Respecting the statement of Dr. Baer as to the incurability of sterility of three years' standing, he had recently had under treatment a lady who had one child seven years ago, but had since been sterile; the uterus was sharply anteflexed; a dilator was used for the relief of the flexion, and three months later the patient exhibited all the early signs of pregnancy. ═════ Dr. Baer remarked that this case was not one of the class to which he had alluded. This patient had had a child, and anteflexion, probably the result of subinvolution and endometritis, was the cause of the sterility. Failure occurred in cases of patients who had never been pregnant, and in which the uterus was enlarged, hard, and changed in its histological character. He thought it desirable to avoid multiplicity of instruments and to have one dilator small enough to enter any os, and so arranged as not to yield to any pressure, but under all circumstances to preserve the parallelism of its blades. ═════ Dr. Thomas thought that one reason why the sponge tent did good work was because it worked slowly and continuously. Four years ago he made drawings of a modification of the steel dilator to accomplish the same end. The instrument was made somewhat shorter than the ordinary one; the blades were absolutely parallel on the outer edges, and were approximated by means of a screw passing through a slot in one handle and attached to the other. A milled head traversed this screw, and between it and the handle of the dilator was placed a spiral spring or a soft-rubber pad. This instrument was intended to remain *in situ* for twenty-four hours, the spring making the action gradual and continuous, one or two turns of the screw being given every two hours by the doctor or a nurse properly instructed. The doctor thought that in this manner he could secure many of the advantages of the sponge tent, and at the same time avoid its dangers. ═════ Dr. R. P. Harris had recently seen in a foreign journal diagrams of a very neat instrument to accomplish the same purpose. It consisted of a C-shaped spring, to the ends of which were attached blades long enough to pass through the internal os. The fingers, pressed upon the top and bottom of the C, closed the instrument for insertion. Its action would be regulated by the strength of the spring. To obviate the danger of its slipping too far into the uterus, a dilator with diverging blades could be furnished with shoulders to rest against the cervix. The divergence of the points of the blades he considered an advantage. The feathering reduced the apparent divergence in use, and that which remained helped to retain the instrument in place, particularly if the blades were furnished with shoulders. The dilating power was strongest where it was most needed, at the internal os. To meet an objection advanced by Dr. Thomas, he suggested that the shoulders might be made movable, to suit uteri of different depths. In every case in which a dilator was used the patient should be kept in bed until the direct effects were over. He had recently had under observation a case of dysmenorrhœa in which the dilator was used without effect, but in which a sponge tent effected a cure. ═════ Dr. Baer thought the blades should be parallel, and that dilatation should be uniform, without regard to the point of greatest constriction. Too much should not be expected from the dilator; a case of dysmenorrhœa could not be cured by one treatment; it was by the repeated use of the dilator at proper intervals that the best results were to be secured. As an instrument, it replaced a set of graduated sounds, and the original inventor must have had that object in view. The contractility of the uterus must be overcome gradually. Even when tents were used contraction would recur. The advantage of the dilator lay in its comparative freedom from danger, and in its being less troublesome to the physician. It was indicated whenever there was constriction from any cause; for if there was not good drainage for uterine discharges there would surely be irritation, resulting in endometritis. The effect of the dilator in hypertrophy was the same as in sterility. If of long standing, it was not curable; after the hard, fibrous stage was reached, no reduction resulted from its use. But if the condition was recent, and the enlargement was of the muscular elements or due to engorgement, a cure might be secured, because here we had nearly the same condition which existed after labor—viz.: a muscular uterus having the power to contract and undergo involution. He did not believe that chronic hypertrophy of long standing would, as a rule, yield to any treatment, but the symptoms to which it gave rise could be relieved to a very great degree in most cases. ═══ Dr. A. H. Smith regretted that Dr. Baer had not seen the admirable effects of the sponge tent on uterine hyperplasia. If a steel dilator were used in the uterus, it could remain but a very short time, practically not more than five minutes, giving a sudden mechanical dilatation, accompanied by probable rupture of the hardened fibers of the cervical canal; but it could not give that stimulation to the contractility of the uterine muscles, and to cell action, that resulted from the use of the sponge tent when no inflammatory action existed. There was great resistance at first, but after the lapse of forty-eight hours the internal os and uterine walls had relaxed, spasmodic contraction ceased, and the vital power and muscular contractility of the uterus were developed by the presence of a foreign body which the natural powers would try to expel. Just as, after the expulsion of an ovum, a physical atrophy of the uterus took place, so a similar action was set up by the presence of a sponge tent in the cavity of the uterus. No such result could be secured by the use of a steel dilator; the latter must lacerate and leave surfaces ready to absorb septic matter, while there was not the advantage of the presence of the salicylic acid or other disinfectant present in the tent; the latter, expanding slowly, was not likely to cause laceration. The too early removal of the tent, while the spongioles were fast in the uterine tissue, might leave an abraded surface; but after forty-eight hours' the tissues would have shrunk away, and the sponge would come away easily. ═══ Dr. Smith read the following letter from Dr. Mundé: "My Dear Doctor: . . . . Remembering your remark with regard to the absence of proper dilatation of tupelo-tents, I procured a number from Tiemann & Co. and dilated them in tepid water. I send you by this same post four different sizes, dilated and undilated, and also two perforated, zinc-lined tents—to be worn during the period, for dysmenorrhœa—one before, the other after dilatation. This amount of dilatation was reached within one hour. Certainly no fault can be found with the expansion of these tents, since it will be seen on comparison that all the tents have swelled to fully double their compressed size, and have retained their expansion on being dried. It may be objected that this full dilatation would probably not take place if a resistance were offered, as in the uterine canal. While I partly admit this, still I have within a month had reason to use the largest size to dilate a uterus, and secured quite as much expansion as shown by the accompanying tent. The softness of the wood allows of their being whittled to any size and shape. I also send a tent dilated *in utero*, which shows some contraction at the site of the internal os. I presume that the failure of your tents to dilate may have been due to their having absorbed moisture from the atmosphere. They should always be kept wrapped in air- and water-tight paper. Tiemann & Co. tell me that all their tents are compressed to their utmost by machinery. As for the other form of dilatation, I have used the steel two-branched dilator of Ellinger almost exclusively; I found it too difficult to force the graduated hard-rubber sound through the cervix if it is virginal and hard; the tenaculum tears out and the force is too great. I have dilated, in hospital and private practice (with two-branched dilators), in about one hundred and fifty different cases, probably some six to seven hundred times, chiefly for dysmenorrhœa and sterility, always in my office or dispensary. I have almost invariably relieved the dysmenorrhœa, temporarily at least; the sterility but rarely, although my later statistics on this point are meager. I have had but one bad result, pelvic peritonitis, and then curetting and tincture of iodine to the endometrium were also employed, either of which might be blamed. I prefer steel divergent dilators for temporary, tupelo tents for permanent results. Slippery-elm tents dilate but little, but I have found them good in dysmenorrhœa, to render the canal patent." ═══ Dr. **Harris** was using cylindrical sponge tents coated with salicylic acid, and found that it had a local anæsthetic effect on the lining membrane of the uterus. ═══ Dr. **Smith**, of the steel dilators which he had tried, preferred the instrument devised by Dr. T. G. Thomas, in which the blades were separated by being drawn into a cannula by screw action. It was, however, difficult to clean. He had found the handles of Dr. Ellwood Wilson's dilators very much in the way when the uterus was anteflexed. ═══ Dr. **Baer** remarked that he was much instructed by Dr. Smith's remarks. He was surprised at the time—forty-eight hours—that a sponge tent could be allowed to remain, and at its effect in the disintegration of abnormal tissue without the development of septicæmia. He found it hard to believe that a change could ensue after the uterine walls had been changed to hard, fibrous tissue; but experience was the best teacher.

A STATED meeting was held April 6, 1882, the President, **Edward L. Duer**, M. D., in the chair.

Removal of the Uterus for Fibroid Tumor; Death; Autopsy.—Dr. **E. E. Montgomery** reported the following case, which had been under his care at the Philadelphia Hospital: Sarah B. (colored), aged 46, widow, native of New Jersey, of temperate habits, had been an inmate of the Philadelphia Hospital for nearly three years. She entered the gynæcological ward about the last of February, soliciting the removal of a large abdominal tumor. The establishment of her menstrual function was attended by severe hæmorrhage, but menstruation soon became regular. The menses ceased at one time for five years. She had not menstruated for two years. She had never been pregnant. The growth of the tumor, which began eighteen years ago, she attributed to a kick in the abdomen from her husband. The tumor soon acquired great size, filling up the abdomen and pressing against the diaphragm, causing great distress. She had been treated by means of hypodermic injections of ergotin, and subsequently by the earth treatment. The latter was followed by a slight reduction, possibly due to the rest in bed. When she came under Dr. Montgomery's care the abdomen was more prominent than if she were at full term of pregnancy. Owing to her emaciation and the loss of muscular power in the walls of the abdomen, the mass had settled down into the lower part of the cavity, encroaching but little upon the portion above the umbilicus. A fluctuating surface, evidently the bladder, covered the whole of the lower face of the mass. The tumor was regular in outline, and about equal in size on either side the median line. At the upper part of the right side could be felt a smaller, loosely connected mass, between which and the tumor the percussion sound was resonant. The abdominal walls were freely movable over the tumor, but the latter could be raised or moved from side to side only to a limited extent. Examination *per vaginam* disclosed the whole uterus involved in the mass, which rested upon the pelvis. The sound could be passed five inches into the uterine canal along the posterior border of the tumor. The posterior lip was thin. The tumor was evidently a fibroid, which had originated in the anterior wall of the uterus, and had drawn the bladder up with it as it grew. In view of the large size of the mass, the patient's anxiety for its removal, and her general condition, it was decided, after a staff consultation, to make an exploratory incision, and, if the adhesions were not extensive above and posteriorly, to proceed to the complete removal of the tumor and the uterus. The patient was kept quiet in bed one week, and three grains of sulphate of quinia, with thirty drops of tincture of the chloride of iron, were given three times a day. The bowels were regulated by the use of compound licorice powder. The urine, examined by one of the resident physicians, was found alkaline, and contained no albumen. The operation was performed March 17th, with the assistance of Dr. Montgomery's colleagues, Drs. Duer, Warder, Parish, Musser, and Hatfield, under antiseptic precautions, using thymol spray. An incision, three inches long, was first made down to the tumor, and the hand was introduced; no adhesions were found above, and but one band posteriorly. The bladder was spread out over and closely adherent to the tumor anteriorly. The opening was now extended to the symphysis below and to the umbilicus above, and the tumor was lifted through with some difficulty. The peritoneal covering of the tumor was burned through with Paquelin's cautery, and the bladder was dissected off. The capsule was then raised on either side, permitting ligatures to be passed beneath the broad ligaments. The lower portion of the cervix was then tied in two sections, both surrounded by ligatures, and the mass was removed. Although the hæmorrhage had not been excessive, the condition of the patient now became critical. The pulse was very feeble, indeed, scarcely perceptible; respiration was infrequent and sighing. It was only through the persistent care of Dr. Parish, in the use of hypodermics of whisky and ammonia, and hot water applications over the chest, that she survived until the wound could be closed. She was placed in bed and surrounded with hot bottles; ergot and digitalis were given hypodermically, and whisky by the mouth and rectum; but without counteracting the effects of shock. She died two hours and a half after the operation. At the autopsy two ounces of bloody serum were found in Douglas's cul-de-sac. The kidneys were small, soft, and flabby, and, upon being opened, were found dilated into sacs, their structure being largely destroyed. One was full of pus. The ureters were greatly dilated. They were not injured in the dissection for the removal of the mass. The heart was contracted, pale, and empty of blood. The ligatures had been applied around the cervix an inch and a half above the os. The tumor was a solid mass weighing sixteen pounds, its lateral diameter being the longer, quite regular in outline, presenting upon the right upper surface a smaller mass with an elongated pedicle. Aside from the necessity of placing such cases upon record to obtain correct statistics, it was of special importance as an illustration of the advantage to be derived from a careful study of the condition of the renal organs previous to the operation, and the increased gravity given by any symptoms that would cause us to suspect a renal lesion. No microscopical examination of the urine was made, so the presence of pus escaped notice, though it should have been suspected from the alkalinity of the urine. ═══ Dr. B. F. Baer considered the examination of the urine a very important point, as albuminous or purulent urine was always a sign of danger. ═══ Dr. H. Beates remarked that in testing urine for albumen by means of Heller's test he had noticed a singular fact in some instances when the urine was alkaline or but very faintly acid. If the acid was added to the urine before boiling, no precipitation occurred, but by reversing the test, boiling first and adding the acid afterward, the presence of albumen was shown. ═══ Dr. Montgomery, in closing the discussion, remarked that, although at the autopsy one kidney was found full of pus, none had ever been observed in the urine. This was perhaps due to occlusion of the ureter from pressure by the tumor. If pus were present in small quantity, it might be considered to arise from cystitis from pressure on the bladder. But if urine were repeatedly found to be alkaline, when no alkalies had been administered, it would indicate the presence of pus, although none were found.

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Reports on the Progress of Medicine.

MONTHLY REPORT ON OBSTETRICS AND GYNÆCOLOGY.

No. XVI.

By ANDREW F. CURRIER, M.D.

Obstetrics.

1. Duncan, J. M.—Presidential address delivered at the Obstetrical Society of London. "Med. Times and Gaz.," Feb. 11, 1882.
2. Chapman, H. C.—On a fœtal kangaroo and its membranes. "Proc. of the Acad. of Nat. Sci. of Phila.," 1881, 3.
3. Dareste.—Sur le rôle de l'amnios dans la production des anomalies. [Acad. des Sci., Paris.] "Bull. Gén. de Thérap.," Feb. 15, 1882.
4. Prentiss, D. W.—Influence of maternal impressions on the fœtus. "Phila. Med. Times," Mar. 11, 1882.
5. Herrick, O. E.—Prevention of conception. "Mich. Med. News," Feb. 25, 1882.
6. Ciccone, V.—Dell' aborto infettivo. Studio clinico. "Giorn. Internaz. delle Sci. Med.," iii, 12, 1881.
7. Wilson, M. A.—Miscarriage—severe, prolonged for nearly four months; unrecognized pregnancy; possibility of twins; recovery. "Rocky Mountain Med. Times," Mar., 1882.
8. Pearson, J. S.—Criminal abortion. "St. Louis Med. and Surg. Jour.," Mar., 1882.

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10. Szabó.—Ueber Vomitus gravidarum. [Gynäk. Gesellsch. zu Dresden.] "Centralbl. f. Gynäk.," Feb. 11, 1882.
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17. Affatati, O.—Contribuzione alla casuistica del parto spontaneo (evoluzione spontanea) nelle presentazioni della spalla. "Giorn. Internaz. delle Sci. Med.," iii, 12, 1881.
18. Trush.—Change of face presentation to one of the vertex by internal manipulations. [Obstet. Soc. of Cincinnati.] "Obstet. Gaz.," Feb., 1882.
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20. Grainger, W. H.—A new obstetric forceps for operation at the superior strait. "Med. Record," Mar. 11, 1882.
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23. Morisani, O.—Sulla sinfisiotomia. "Giorn. Internaz. delle Sci. Med.," iii, 10–11, 1881.
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31. Parvin, T.—Hypodermic ether in puerperal hæmorrhage. "Am. Practitioner," Mar., 1882.
32. Polk, W. M.—The general management of the puerperal state. "Med. Record," Mar. 4, 1882.
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9. M. Delattre has a short article upon *a symptom of the beginning of pregnancy*, referring to the almost complete disappearance of the phosphates from the urine at that time. These are used to only a small extent in the development of the fœtus during its early existence, but are condensed almost entirely in the bones, either simply increasing their weight or appearing as osteophytes upon their surface. During the latter months of pregnancy this reserve is drawn upon, and this process continues until lactation is well advanced. By that time the bones again have the normal proportion of this substance in their composition. Both mother and child suffer when this *quasi* secretion does not take place during utero-gestation, and the deficient substance should be supplied artificially in the form of phosphate of lime. Clinical experience has satisfied the author of the good effects of such practice. The preparations preferred are the syrup and the *vin Dusart*. He has also found these preparations useful in the vomiting of pregnancy, and thinks that the teeth of the children come earlier and with less trouble after their use.

10. Dr. Szabó, in speaking before the Gynæcological Society of Dresden, declared, as the result of his studies, that the *vomiting of pregnancy* was not an essential concomitant, and could not be regarded as a direct consequence or as a symptom of pregnancy, and that it did not occur in half the cases. It was present most commonly in primiparæ, occurring with at least half of this class. It was very likely to occur at the beginning of pregnancy, as was commonly supposed. The most common cause was believed to be the extensive change in the condition of the blood during this period. To remedy this condition he proposed: 1, general treatment; 2, local treatment; 3, active obstetrical interference. [What the definition of these phrases may be is not manifested in the brief report from which the foregoing has been abstracted. The author promises to elucidate in the future.]

24. Dr. Pawlik, of Vienna, has had a controversy with Dr. Bidder on the subject of the Braun decapitating hook, and takes him to task in a paper entitled "on the question of *decapitation with Braun's hook*." The article, being largely personal, does not require very extensive notice. Pawlik says that in ninety-nine reported cases where this instrument was used only nineteen mothers perished, which he considers a good showing. He denies that he or his Vienna colleagues use any one method or instrument to the exclusion of any other which shall be proved to be as good or better. Experience has proved to him the value of the decapitating hook, and also of the trephine, the crown of which is screwed into the abdominal or thoracic wall when evisceration is indicated. [We do not think that any one who has seen the workings of either the hook or the trephine will be especially inclined to introduce them into American obstetric practice. That no more accidents have occurred to the mothers or the operators in the use of the hook is no fault of the instrument. Fortunately, in this country we do not see many cases that require these instruments.]

31. Dr. Parvin advocates *the hypodermic use of ether in puerperal hæmorrhage*, relating a case which he saw in consultation where such hæmorrhage had occurred, the placenta not having been removed. The patient was seen two hours after delivery, and showed the usual symptoms accompanying post-partum hæmorrhage. Whisky and ergot had been given previous to his arrival without benefit. The patient's head was at once lowered and the accoucheur's hand introduced into the uterus. The placenta was found lying free in the uterine cavity, and, as contractions could not be excited, it was removed by hand. Water at 110° F. was then injected, but without response. A drachm and a half of sulphuric ether was then injected hypodermically in ten-minim doses at intervals of from five to ten minutes. Friction and compression were also used, and satisfactory contractions followed, until in half an hour the uterus had reached the normal size and firmness. The patient recovered, though her convalescence was slow. The author desires to emphasize the importance of compression of the uterus from the time the fœtus is expelled until the placenta is similarly disposed of. Of all means for arresting hæmorrhage by the production of contractions and stimulation of the prostrated patient, he considers the hypodermic use of ether the best.

37. Dr. Winckel, of Dresden, has a very interesting paper on *the employment of permanent baths with very* *young infants.* [The expression *permanent*, as will be seen, has only a limited meaning here, since in the experiments made the bath was not used for more than twenty-four hours at a time. Still further trials are to be made, and longer periods of immersion are suggested.] The following conditions form indications for this treatment: 1. A deficient degree of vitality in children from twenty-eight to thirty-six weeks of age, with whom the usual methods of securing warmth by wrapping in cotton, by warm baths, etc., seem inefficient. 2. Great weakness after deep asphyxia in consequence of hæmorrhage at birth or afterward from an imperfectly-tied navel-string. 3. Extensive lesions of the skin, especially excoriations of the nates, genitals, and heels, besides extensive pemphigus not of a syphilitic nature. These are indications, partly because the pain is a source of great trouble to the little ones, partly because of the pressure and friction of the clothes, partly because otherwise the moderate employment of medication upon the abraded skin and the cleansing of the skin from urine and fæces are unavoidable. 4. Decided emaciation from gastric and intestinal catarrh is an indication in order to protect the surface from pressure, to avoid abrasions, and to take the place of the abnormally small generation of heat from within by heat from without. Other indications might be added, as the various diseases of the cord, erysipelas, etc., in all of which immersion of the child to the chin in warm water, medicated, perhaps, with calamus, chamomile, infusion of walnut-leaves, gelatine, malt, or iron, might offer favorable results. This idea is not claimed by the author as original, since it had occurred to even the earliest writers and practitioners. The tank for carrying out this treatment is constructed with the following details: Length, fifty centimetres; breadth, twenty-nine centimetres; depth, twenty-two centimetres. The bottom is inclined from the center toward either end, the middle point being nine centimetres higher than either end. At the *head* end is a depression thirteen centimetres deep and eleven wide, which projects over the upper border of the tank. From this proceeds a rest for the back eight centimetres broad and six long. The tank holds twenty litres, with openings for the discharge of the water upon the bottom at both ends. A cover fits over the tank, which has a window twenty centimetres long and fifteen broad, through which the greater part of the body can be seen. There are three openings in this cover closed by corks, through which warm water can be poured as desired, and a thermometer inserted to ascertain the temperature of the bath. A rubber pillow is fitted into the depression for the head, and there are rubber rests at the sides for the arms. A screen is adapted over the head depression to protect the infant from too strong light and from flies. The author has used this tank with success, keeping the children in it for twenty-four hours at a time, during which he declares they drink and sleep well. One child suffered greatly from dyspnœa and cyanosis before the bath. When immersed, the breathing became easy, the cyanosis disappeared, nourishment was readily taken, and the child revived. A very carefully constructed table is given by the author, embracing a series of six cases, showing the various changes in the condition of the patient, the temperature of the water, and the nourishment—in a word, all the details in the management of the patients while in the bath. He next raises the question as to whether in the clinic and in private houses circumstances warrant the extra trouble and care necessitated by the method proposed, answering in the affirmative, since the greater comfort and health of the child are insured; and as to the trouble, even in the poorest families, with the tank furnished, it would be a small matter to add half a litre of water every half hour or hour, in order to keep the temperature of the bath at from 35° C. to 37·5° C. Even restless children became quiet, according to the author's experience, while in the bath, and drank and slept better; indeed, the appetite seemed to be increased. One of his patients died of enteritis while immersed, but seemed more comfortable while thus treated—seemed to suffer less pain than when out of the bath. He apprehends no trouble from the urine and fæces, since the water can be drawn off as frequently as necessary. The author does not consider his experiment concluded as yet. He has made some improvements in the construction of the tank, and thinks the success already obtained opens a wide field for investigation as to the variety of diseases to be treated, the length of time during which it would be well to keep the child immersed, the temperature of the bath, and, in general, the conditions best suited for its employment.

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9. Dr. Kroner, of Breslau, discusses at length the subject of *the relations of urinary fistulæ to the sexual functions in women.* In regard to menstruation among those who suffer from this affection, Freund says: "A disturbed menstruation is not a common accompaniment." Schwarz, on the other hand, finds that most women suffer from amenorrhœa from the time of the accident. Winckel says that menstruation may be in abeyance, may be irregular, or may be painful. The author has collected a series of sixty cases from his own and Spiegelberg's clinics at Breslau, from which he gathers the following facts: In fourteen cases only was the period regular, and in two of these the quantity was small. These fourteen cases were distributed under several varieties; eight were taken from a series of twenty-seven cases of vesico-vaginal fistula; three from a series of twenty-two vesico-utero-vaginal fistulæ; two from a series of six vesico-uterine fistulæ; one from a series of two utero-vaginal fistulæ. In thirty-eight cases menstruation ceased entirely; in five the function was irregular, appearing at intervals of from several months to a year. In two it came occasionally, and in scanty quantity; and in one appeared only once after the accident. The age of the patient seems to make no difference in regard to the cessation of the menses; thus, in twelve primiparæ the accident was followed by complete amenorrhœa, while in nine multiparæ, after a series of difficult labors, the function remained quite regular. From another arrangement of the cases already referred to, the author shows that a direct influence of the fistula itself upon menstruation does not exist. Conception took place in two cases where amenorrhœa existed, showing, again, that menstruation does not necessarily signify ovulation, or, more properly, that the latter may exist without the former. The subject of conception, pregnancy, and labor in cases where fistula exists is next taken up. The possibility that fistula and pregnancy may coexist, once denied by Braun, is conceded, and several cases are cited in proof of the fact. Winckel, while admitting the possibility of the coincidence, considers that the number of women with fistula who become pregnant is very small. The danger of enlargement of the fistula during parturition is very great, and abortion is not an improbability. Schröder, on the other hand, declares that conception, pregnancy, and parturition are alike unaffected by fistula. Six women in the author's series of sixty cases already quoted from became pregnant. In many instances coition is difficult and painful. Sterility is sometimes due rather to atrophy of the uterus than to the influence of the fistula. The activity of the seminal fluid is undoubtedly impaired by an acid condition of the urine, but not by an alkaline condition, so that usually, in fistula cases, when the semen is ejected simply into the vagina, conception is not likely to occur. Of thirty-seven cases where it did occur, in twenty-one it occurred

once; in twelve, twice; in three, three times; and in one the number is not stated. In twenty-three of the thirty-seven cases, miscarriages occurred; in nine, labor came on at term. In regard to closing the fistula during pregnancy, opinions are divided. Since there is always more or less danger of producing miscarriage by such a procedure, the author is of the opinion that it is better to defer the operation until after delivery. Of five patients operated upon during pregnancy, three aborted and two went to term. Both of the latter were in the third month of pregnancy at the time of the operation, but this fact was not known by the operator at the time. As his third and final subdivision, he speaks of pregnancy and labor in cases of fistulæ which have been cured. A well-healed fistula will not yield to the traction exerted by the enlarging uterus. As to the influence of labor in this regard, eleven cases are cited where fistulæ had been closed. In nine of them there was no repetition of the accident; in the remaining two it recurred, but not in the site of the previous one.

18. Dr. Heywood Smith, in a clinical lecture upon *areolar hyperplasia and fissure of the cervix uteri*, speaks of the attention which is now aroused upon the subject of Emmet's operation. He wishes to refer to points of difference between induration of the cervix, the result of chronic trachelitis, and hyperplasia of the same organ associated with fissure. Formerly, he says, all cases of hypertrophy, with induration of the lips of the uterus, were classed as cases of areolar hyperplasia depending on chronic inflammation, while now many of them are considered to be due to fissure of the cervix, this being the result of a change of fashion, so to speak; in other words, a different way of looking at a well-recognized condition. The induration and hypertrophy referred to rarely exist except with those who have borne children. The poor and ill cared for among mothers are more likely to have bad results after the puerperal condition than those who can rest and allow sufficient time for complete uterine involution. He next refers to and elaborates three conditions: 1. Simple hyperplasia of one lip; 2. General hypertrophy with induration of both lips, leading to their eversion; 3. Everted labia with induration, and granular disease associated with fissure of the cervix. In the first class, retroflexion being a common antecedent condition, the puerperal state is very apt to be followed by chronic congestion and inflammation upon the posterior lip;. then induration upon the proximal surface with granulation superficially. This condition was formerly known as "ulceration of the os." In the second class both lips, becoming thickened and hardened, press upon each other and tend to roll outward, or evert. The cervix then shows extensive areolar hyperplasia, and the os is widely open. The results are, commonly, pain in the pelvis and in one or both hips, muco-purulent discharge, menorrhagia, and metrorrhagia. In differentiating between this condition and cancer of the cervix, in the former the hardness appears to be sub-mucous, the mucous membrane seeming to be, to a certain degree, free and separable, while in the latter there is a general hardness, like hard, wet India-rubber. In the third class the hardness and eversion are extensive, and are due, according to Emmet, primarily to fissure on one or both sides, the rupture at the birth of the child having been the starting point and main factor in producing the condition. He states that Emmet scarcely recognizes any other cause of areolar hyperplasia, and that he insists that all lacerations during labor should be closed at once, or, if not then recognized, should be operated upon later, as the only means of accomplishing a cure for the ills they have caused. The author declares that areolar hyperplasia following chronic trachelitis may exist without any fissure, the diagnosis being easy in the first class of cases (where the posterior lip is chiefly involved), both by the touch and with the speculum. Where both lips are involved, the diagnosis is to be made by searching for the fissure, with the cicatrix at its angle, the rent proceeding to a greater or less distance toward the cul-de-sac. This fissure being absent, the trouble can not have been caused by parturition. In regard to treatment: in simple areolar hyperplasia he would advise to remove the induration, either with caustic potash, with the actual cautery at a white heat, or by excision with a narrow knife. By the first method it may be necessary to repeat the operation in order that all the hardened tissue may slough away. Unless the case be carefully watched, occlusion of the cervical canal may take place. The

cautery is more useful where the induration is not deeply seated, and in such cases there is also less danger of subsequent pelvic cellulitis from its use. Where the fissure is undoubted, Emmet's operation is indicated, which must be done thoroughly—that is to say, all hardened tissue must be removed and the edges of the wound nicely apposed. In such cases his results have corresponded with Emmet's claims for the operation.

16. Dr. Baer reports a case of *death after dilatation of the cervix uteri with a laminaria tent.* The patient was delivered of her last child in September, 1880, the labor being difficult, and being followed by severe hæmorrhage. Metrorrhagia had been continuous since then, being severe every two weeks, and accompanied by uterine tenesmus. She had also suffered from leucorrhœa and backache. When examined by the doctor, he found the cervix and perinæum lacerated, the uterus in a state of subinvolution and retroverted with fixation of the cervix posteriorly. His treatment in the main consisted of hot vaginal douches, iodine applications, occasional reposition of the uterus with the patient in the knee-chest position, and scarification of the cervix. The constriction at the internal os prevented satisfactory applications, and he decided to dilate the canal. This was two months after he began to treat the case. A laminaria tent was introduced and kept in position twenty hours. Upon removal some constriction at the internal os still remained. The dull curette was used, and a quantity of fungosities was scraped away. Septicæmia with metritis and perimetritis quickly followed, and death came at the end of three weeks. The patient's temperature was 100° Fahr. before the operation was begun. Precautions against septicæmia were taken, but proved ineffectual. He asks, very pertinently, whether the curette was indicated, whether dilatation with a steel sound should have been preferred, and whether the operation was too long deferred —justifying his course in regard to the two former points, but believing that he made a mistake as to the latter. ═════ The discussion did not touch upon the case in question, nor upon the operation performed, but dealt with the general subjects of tents and the advisability of their use. Sponge tents were, for the most part, considered reprehensible, however carefully prepared and introduced. The customary arguments for and against the tupelo, laminaria, and other forms of tents were also made. Aside from the advisability of dilatation with tents in cases of uterine hyperplasia, its performance in cases of sterility was touched upon, and the favorable time considered to be just previous to the menstrual epoch, sufficient time before menstruation being allowed for the malign influence of the tent, if any, to pass away. [Concerning dilatation with tents, the method in use at the Woman's Hospital is: first, to have the patient's bowels open; then to introduce small tupelo or laminaria instruments which have been previously dipped either in a solution of carbolic acid or one of carbolic acid and glycerine (equal parts), securing them in position by a few pledgets of carbolized cotton. The patient is removed from the operating-room to the ward, *upon the table*, and kept in bed until again required in the operating-room, whither she is carried upon the table. The point is, of course, to secure perfect quiet once the tents are introduced, and watchfulness is observed for the slightest rise in temperature. The tents seldom remain in position more than twenty-four hours, and are carefully removed. The object for which they were introduced, whether examination or operation, having been attained, the vagina is thoroughly cleansed, and usually another tampon is applied, to remain another twenty-four hours.]

19. The *treatment of dysmenorrhœa and sterility by dilatation with metallic bougies* was recently discussed by the London Obstetrical Society after a paper upon the subject had been read by Dr. Godson. [For an abstract see the March number of the Journal, p. 304.] In the continued discussion, Dr. Rogers approved of the practice years ago, encouraged as he had been by Sir James Y. Simpson. Latterly, bad results had caused him to give up the practice as well as that of incisions of the cervix. He was in favor of the intra-uterine stem of vulcanite, seldom seeing bad results from its use. ═════ Dr. Braxton Hicks thought the spasm in passing the bougie might be due to reflex irritation, and that the bougies should be carefully graduated, and admitted that, with all possible care, dysmenorrhœa might occur from a hæmorrhagic coagulum or from tumidity of the mucous membrane. ===== Dr. Savage condemned the use of bougies *ab omni parte*, as dangerous and ineffective. ===== Dr. Priestley objected decidedly to the local treatment in unmarried girls, which in many cases was absolutely unnecessary. He approved of both dilatation and incision in proper cases, considering the latter procedure rather hazardous. ===== Dr. Galabin spoke of the great success which sometimes followed treatment for sterility by dilatation. The great object, both in this difficulty and in dysmenorrhœa, should be to have the cervical canal open. An open canal, however, did not necessarily mean freedom from dysmenorrhœa, since menstruation implied not only the discharge of fluid blood, but sometimes of clots and fragments of mucous membrane. ===== Dr. Aveling spoke of the four methods of dilatation possible in the treatment of dysmenorrhœa: 1. By stems, which he called the physiological method. 2. By wedging the canal open with sounds, bougies, and plugs. 3. By direct dilatation with tents or other expanding instruments. 4. By incisions. Each of these methods was applicable in certain cases.

20. Dr. Herman gives reports of two cases. The first has for its title "*Primary dysmenorrhœa;* os externum admitting a No. 11 bougie; division of the vaginal portion bilaterally; relief to the dysmenorrhœa for at least twelve months." The second is entitled "Neurotic inheritance; *acquired dysmenorrhœa;* nervous symptoms; os externum admitting a No. 10 bougie; division of the vaginal portion; relief to the dysmenorrhœa for at least four years; no benefit to the nervous symptoms." The patient in the first report was twenty-four years of age, with no previous illness, except erysipelas. Menstruation began at eighteen years of age, was regular, was scanty in quantity, and lasted three days. Dysmenorrhœa appeared at the establishment of menstruation, continuing during the period. There was constant dragging pain, chiefly on the left side, from the breast downward, extending into the thigh. The less the flow the greater the pain. Leucorrhœa was marked during the week preceding and the one following the period. The patient was married at twenty years of age, but had never been pregnant, had suffered from dyspareunia for the twelve months preceding her appearance for treatment, and had also suffered with headache and nausea for a similar period. Her appetite was good, her bowels were regular, and she had decided anæmia of the face. On abdominal palpation there was tenderness over the left ovary. By the vaginal examination the uterus was found to be small and slightly anteflexed, its cavity measuring two and a quarter inches in length. The cervix was conical, the external os admitted a No. 11 urethral bougie, the internal os a No. 7. The right ovary could be felt *per vaginam*, the left one was out of reach. Dr. Herman divided the cervix bilaterally, no accident following the operation. Thirteen days after the operation she menstruated, it being the proper time. The flow was more copious than usual, and there was no accompanying pain. The dysmenorrhœa was relieved for the following twelve months, and then returned. At the same time the nervous symptoms were marked, and the appetite was failing. Subsequently she did not appear at the London Hospital, where these observations were made, hence no further history could be obtained. ===== The other patient was twenty-five years of age, married but never pregnant, and of neurotic family history. Menstruation began at thirteen years of age, the periods appearing at intervals of from two to three weeks. It was usually copious, lasting three or four days, and accompanied by the passage of clots. It began to be painful five years ago, and at the time of presenting herself for treatment was less pronounced than formerly. It usually began two days before the flow came on, and lasted until that ceased. It was more severe on the left side, and was intermittent. She also suffered from leucorrhœa, headaches, and hysterical attacks. The bowels were constipated, there was pain in micturition, and the appetite was not good. The uterus was normal in position and size. The os externum admitted a No. 10 bougie. This patient was operated upon in a manner similar to the other, no bad results following. Twenty days after the operation she began to menstruate, the period lasting four days and being without pain. It was also normal as to quantity. After seven months she was interrogated, and replied that menstruation had been regular, with only slight pain, but that there had been soreness of the vulva, bearing-down feelings, and considerable nervous depression. Two months and a half later she said she was much better, with the exception of nervousness, which continued. ═══ The remarks upon these cases were to the effect that this operation of discission, which has fallen into disuse of late years, might be followed by long-continued relief from dysmenorrhœa. The reason for its disuse was, perhaps, that criteria sufficiently accurate had not been laid down as to cases where it was indicated. From these two cases it appeared that small caliber of the cervical canal was not an essential condition in order to obtain benefit from the operation. In the second case the uterine disease was probably not the chief factor in the patient's condition, since the nervous symptoms were not relieved by the operation.

22. M. Olivier contributes a long article on the employment of *ignipuncture in the treatment of chronic parenchymatous metritis.* This is only one of the many means of treating a very tedious disease, but if used faithfully it is believed that it will restore the organ to its normal condition. Percy was the first to use the red-hot iron in uterine affections, in 1811. Larrey followed him in cauterizing the cervix for ulceration [so called], but especially in cancerous ulceration. Jobert de Lamballe, however, was the first to bring it into general use in uterine affections, though he cauterized more deeply than is now deemed advisable. Its use in chronic parenchymatous metritis is of recent date, Courty, of Montpellier, first publishing a work upon the subject. Gallard had used this method of treatment as early as 1872, and MM. Boda and Caron have since then published their experience. Good results have always been obtained, but not invariably cures. The author is particular in saying that it is not desirable to use this agent to the exclusion of others which should sometimes precede, sometimes follow it. The disease has two periods—one of infiltration, the second of induration. A final period may follow, in which the uterus atrophies and takes on a cartilaginous consistence. The first period is that of hyperæmia, in which the dominant lesion consists in the presence of a great number of embryonal elements in the uterine tissue. They may either surround the vessels or be disseminated in islands. They cause, first, dilatation of the lymphatic spaces; secondly, hyperplasia of the connective tissue surrounding the vessels. Cauterization at this period is absolutely unadvisable. It is at the end of this period of congestion, when the embryonal elements have begun to be organized into fibrous tissue, that the cautery should be used. Then, by touch, hardened points will be found upon the cervix. With the speculum the organ will be found pale and dark in spots—mottled, as it were. At a later period the color is a pale red, with follicular tumors upon the surface. Cauterization now acts to produce activity of the uterine circulation and absorption of the exudation. It is a profound derivative, and will often produce a radical cure. In the second period of the disease it may also be used, now exercising a stimulant action. The modification produced in the tissue of the cervix is propagated to that of the remainder of the organ, and renders stasis of the blood impossible. If the adjoining organs are inflamed, cauterization is contra-indicated. The same statement holds good where pregnancy exists. The iron should be applied where the hypertrophy is most marked, a double action being expected, namely, to dissipate the metritis and to resolve the hypertrophy. The form of cautery to be used may be either the iron, the galvanic cautery, or Paquelin's cautery. Preference is expressed by the author for the last. The application is made, with the patient in the ordinary [French] position for examination, through a cylindrical speculum, which is to be cooled with water after each thrust of the cautery. These thrusts are made parallel to the axis of the cervical canal. The average depth to which the cautery should be carried is about one centimetre. The number of thrusts should vary from three to eight, according as one or both lips are affected. Emollient injections, to cover the wounded part, should be made for three or four days, and gradually the patient may be allowed to go about. Inflammation, ulceration, and cicatrization follow. Where the operation is to be repeated, at least three weeks should intervene between the *séances*. The number of *séances* required may be no more than two, or there may be as many as ten before a cure is effected. As to results, one of the first is the cessation, complete or partial, of the pain common in this disease. The dragging sensation disappears more slowly. The secretion of the cervical mucous membrane is at first muco-purulent after the operation, but this soon disappears. Menstruation becomes regular and normal, where there was formerly dysmenorrhœa or amenorrhœa. Accidents seldom follow the operation where proper care is exercised.

21. Dr. Wiedow discusses the subject of *removal of the ovaries for uterine fibro-myomata*, and adverts to the opinions which have been expressed for and against the operation, a state of affairs always to be expected with regard to any new proposal, which must remain *sub judice* until a large body of facts concerning it has been collected. He remarks justly that the treatment of uterine fibro-myomata is one of the absorbing questions of the day, whether this be by enucleation, castration, supravaginal amputation, myomotomy, or total extirpation of the uterus. He thinks the first great point of consideration to be the anatomical conditions with reference to these growths. Successful operation depends in great degree upon these, whatever method be chosen. Thus, castration alone would be suggested in case of a growth not projecting decidedly into either the uterine or the abdominal cavity, with a thick and scarcely movable pedicle, and with the ovaries quite movable and easily found. It is always presupposed in discussing these different methods that the patient's condition is such as to warrant operative interference. Because of the necessity of extensive statistics on a matter of such vital importance, the author has delayed the publication of his views until the present time, and now offers the notes of twenty-one cases of uterine fibro-myomata where Battey's operation was performed. The observations extend over a period of nearly five years, and are summarized as follows: Deaths, 3. Diseases following operation: peritonitis, 2; intra-peritoneal abscess, 2; circum-vaginal abscess, 1; thrombosis, 1. As to the menopause: It came immediately after the operation with 11; after one to three periods with 4; after nine regular periods with 1. Enucleation was performed, after hæmorrhage following three months' absence of menstruation, in one case. In one case the menses continued five months, followed by hæmorrhage and by increased development and lymphangiectatic degeneration of the tumor. The final statement is as follows: Recovery with menopause and diminution of the growth, 15; recovery after nine menstruations, 1; recovery after enucleation of the tumor (as above), 1; temporary improvement followed by degeneration of the tumor, and death after nine months, 1; deaths from the operation, 3.

22. Dr. Haidlen, in discussing the question of the *total extirpation of the uterus*, speaks of the increasing preference for the vaginal over the abdominal method of operation, particularly on account of the far better results obtained. Freund's modified operation will continue to be required in cases of greatly enlarged uterine body and those of decidedly small vagina. At the beginning of this year fifty-two extirpations *per vaginam* had been done. The author now publishes the histories of seven of these which were accomplished by von Teuffel, of Stuttgart, in all of which, with one exception, the peritoneal wound was closed by suture, thus enabling antiseptic precautions to be more thoroughly carried out, though differing from the method of Kaltenbach, Olshausen, Mikulicz, and others, who believe in the thorough drainage of the cavity. The first case was one of carcinoma of the cervix. The operation lasted five hours, and the patient recovered. A year and a half later there had been no return of the disease. The second case was one of carcinoma of the cervix, with incipient phthisis. Duration of the operation, two and a half hours, resulting in recovery, but with return of the growth after six weeks. The third was a case of total prolapse of the uterus and vagina. The uterus was removed, and the patient recovered. The duration of this operation was two hours and a half. Kolporrhaphy of the anterior and posterior walls was successfully performed two months later. The fourth patient had retroversion, retroflexion, fibroids of the uterus, and chronic adhesive pelvic peritonitis. The uterus was removed, and in the course of the operation the rectum was accidentally wounded and required suture. This operation also lasted five hours, but the patient recovered. The fifth was a case of carcinoma of the uterus, and in this the abdominal cavity was drained, as the difficulties in closing the peritoneal wound were too great to be overcome. The duration of the operation was two hours and a quarter.

The patient died during the second night, of acute septicæmia. The sixth patient had carcinoma of the portio vaginalis. The operation lasted five hours. Death came during the fourth day, from septicæmia. The seventh was a case of carcinoma of the cervix. The operation lasted three hours and a half, and the patient died on the second day, from acute septicæmia. [Following these cases is a long description of the various steps in the operation which is being discussed. These steps must vary more or less in each case, and with every operator. At the risk of being tedious, we shall try to abbreviate it.] 1. The first step is the separation of the bladder from the uterus. The anterior lip is seized, and an incision is made around it in the anterior cul-de-sac, the finger assisting in separating the deeper layers of tissue, if deemed advisable. The opening is made only so far as the peritonæum. 2. Removal of the posterior vaginal wall and peritonæum from the posterior cervical wall. The posterior lip is seized, and an incision is made around it, meeting the ends of the incision previously made. Douglas's pouch is opened as high up as possible, and the posterior border of the divided peritonæum is secured by a long ligature carried through it, the ends of which may be held by an assistant, thus pulling back the peritonæum and leaving a larger opening for the removal of the organ when excised. 3. Separation of the parametrium from the uterus. The left side is first separated, ligation of vessels is performed, if necessary, and then the same steps are taken upon the other side. 4. Retroversion of the fundus through the peritoneal wound, unless the uterus be anteverted, in which case it is to be removed through the anterior cul-de-sac. A sponge, thoroughly disinfected, is then carried into the posterior cul-de-sac, to prevent the prolapse of the intestines, and catch any fluid discharge which may take place. 5. The broad ligaments are now tied, at the insertion of the tubes, in separate sections. [The author does not explain how this is to be done, but probably as in Freund's operation and its modifications.] The ends of the ligatures are allowed to hang from the vulva. 6. The vesico-uterine fold of peritonæum is now divided, and the uterus is drawn out. 7. The ovaries are removed, unless adherent, in which case it is better to leave them. If the ovaries and tubes present at the wound, they should *both* be removed. If the ovaries are within the peritoneal folds, then they alone, and not the tubes, should be taken out. The most scrupulous cleanliness is, of course, always to be observed, and antiseptic precautions must be thoroughly carried out. The peritoneal wound is closed, and the ends of the sutures are allowed to hang from the vulva. If the perinæum was divided at the beginning of the operation, it, also, should now be closed. The sutures in the perineal and peritoneal wounds should be removed in one week. The others come away in from three to four weeks. By the sixth week the cicatrization is usually complete. Of the fifty-two reported cases where this operation has been done, eighteen patients have died—two from collapse, three from collapse and septicæmia combined, two from acute septicæmia, five from septic peritonitis, one from secondary hæmorrhage, and five from unknown causes. The indications for operation were: carcinoma uteri in forty-one cases; adenomatous degeneration of the uterine mucous membrane, with copious hæmorrhage, in three; prolapse irremediable, except by operation, in two: retroflexion, with fixation, also myomata accompanied by profuse hæmorrhage, in one; cause unascertained in five. The injuries to neighboring organs were: wounding of the bladder in two cases where carcinomatous infiltration existed; wounding of the rectum in one case. In thirty-seven cases the peritoneal wound was left open, and the cavity was drained. In eight cases the peritoneal wound was closed. In the remaining seven the method of treatment was not ascertained. Of the thirty-seven patients upon whom drainage was used, twelve died. Of the eight whose peritonæum was closed, two died. In those operated upon for cancer, the disease returned in from six to twelve weeks in the greater number. The author confesses that very few cases of cancer of the uterus offer much hope of permanent recovery by extirpation of the organ. Other diseased conditions, such as have been already mentioned, give a more favorable outlook. In the matter of drainage, the system of Bardenheuer, that of leaving the peritoneal wound open and introducing a tube, can not have so strong a claim to efficiency in this operation as where Freund's, or some one of its modifications, is performed. The author thinks that the most desirable and simple process is to close the peritoneal wound and leave the healing to Nature; that is to say, to interfere with the wound just as little as possible. He approves of the Billroth-Mikulicz plan of applying iodoform to the wound, and tamponing the vagina with iodoformed gauze.

25. Dr. Schwarz gives the results of an experimental study upon *the action of irritants introduced into the abdominal cavity* of dogs. Referring to a former paper of his, he considers groundless the fear that medication of the uterine cavity may result in the passage of some of the substance so used into the abdominal cavity, with dangerous or fatal consequence. The reason for his belief is the contractility of the muscular structure of the uterus, which would effect an almost absolute closure of the uterine canal, and hence form a barrier against entrance to the tubes as soon as the astringent substance should be applied. But, even if a few drops of the injected solution were to force its way into the abdominal cavity, he does not think a suppurative process would follow, or a peritonitis which would prove fatal. Adhesive peritonitis, more or less extensive, he admits, might occur; but from a theoretical standpoint, since bacteria are absent, no purulent form could develop. He refers to the well-known fact that peritonitis sometimes follows the injection of iodine into ovarian cysts. It also seems conceivable to him that the action of injected fluids upon the thin intestinal wall may in some cases cause perforation and consequent general peritonitis. This latter idea suggested to him a series of experiments upon animals, to test the question. Dogs were used in all cases, the liquids employed being tincture of iodine, liquor ferri sesquichloridi, and nitrate of silver, in ten- and twenty-per-cent. solutions. The operations were done with antiseptic precautions. The abdomen was opened, and the injections were made directly into the peritoneal cavity with a Braun's uterine syringe. The wound was then closed with catgut sutures, and collodion was painted over the surface. Seven such experiments were made, two of which resulted fatally after the use of strong nitrate-of-silver solutions upon pups only six weeks old. In the other cases, using full-grown dogs, scarcely any shock was noticeable; severe pains were apparent after the use of the silver solutions, but these soon passed away, and in all cases the animals were running about again in a few days as well as ever. Several months after these experiments some of the dogs were killed, and no trace of adhesive inflammation was found in the peritoneal cavity. Neither could there be discovered the effects of any corrosive or other deleterious action upon the wall of the intestines. The author adds that what he had considered probable *a priori* was now confirmed by experimental evidence, viz., that septic inflammations take place in the peritoneal cavity only in the presence of infectious germ material; that the action of the before-mentioned solutions upon the serous membrane is only superficial, and does not alter the condition of the wall of the gut; finally, that one need have no great fear in using these solutions for the extirpation of adherent abdominal tumors, and the stopping of hæmorrhage upon the abdominal or intestinal wall. [It seems like a long jump from the premises given to the conclusion reached by this author. There are very few, we must believe, who will surrender their faith in the old theories concerning the great sensitiveness of the human peritoneal membrane upon such slender evidence as is afforded by these experiments. The laws governing peritoneal inflammation in man and in animals are no nearer parallelism than are those relating to shock and to recovery from traumatism.]

QUARTERLY REPORT ON SURGERY.

No. X.

By CHARLES B. KELSEY, M. D.,

SURGEON TO ST. PAUL'S INFIRMARY FOR DISEASES OF THE RECTUM.

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19. M. Servier has reported an extremely rare case of *fracture of the spine and luxation of the right iliac bone in the same subject.* The injury was caused by a fall upon the pavement from a height of fourteen or fifteen metres while the patient was in the delirium of typhoid fever. The fracture of the spine was well marked, and was at the first lumbar vertebra. In spite of the fracture, the lower limbs had lost neither sensation nor motion, though one of the young men in the hospital discovered two or three spots of anæs-

thesia on the thighs which a subsequent careful search failed to verify. It is supposed that there was paralysis of the genito-urinary organs, but on this point the history is not positive. There was retention of urine and involuntary passages from the bowels, and there was marked insensibility to pain during catheterism. The autopsy also revealed a luxation of the right iliac bone, which was not suspected during life. The bones were separated, but not at all displaced. The patient, as long as he lived, was able to turn himself in bed and to attend to himself as far as was necessary for the examination of the back and for the natural movements of the bowels. The pubic bones were completely separated, the fibro-cartilage remaining attached to the left one. The bones were retained in their normal position by the soft parts alone, and there were no signs of violence except in the ligaments, which were ruptured. The right sacro-iliac articulation presented the same appearances as the symphysis. All the ligaments were ruptured, some at the middle, others at their points of attachment to the bones. The other soft parts were uninjured, and the bones were not displaced, but were easily movable one upon the other in the hands. There was no fracture either of the ilium or of the sacrum.

35. Mr. Creighton, at a recent meeting of the Royal Medical and Chirurgical Society of London, read an elaborate paper tending to show *the manner in which cancer invades the connective tissue.* The argument was based upon three cases of tumor arising in the skin glands of a dog. The glands were sweat glands, but secreted sometimes a viscid, mucus-like fluid, and at others were filled with a compact mass of large spherical cells of yellowish-brown color and granular substance, obviously transformed epithelial cells. The convoluted glandular tube had a wide lumen, and was distinguished and always easily identified by the well-known coat of plain muscular fibers, forming a close and uniform membrane on which the epithelial cells directly rested. Glands of the same kind occurred in man, at the apex of the axilla. Two of the tumors from the dog's skin exemplified the infiltration of epithelial glandular products into the spaces of the connective tissue around the glands. In the appearances described and figured from these two cases, the author found support for the doctrine of extra-glandular accumulation of solid or cellular products of the secretion, as already put forward by him for the breast. The origin of the tumors was to be referred, not to a disorder of the glandular structures, but to a disorder of glandular function. The third tumor was a true cancer (scirrhus), proceeding from the same glands in the skin of the dog's back; a coil of intact glandular tube, as figured, was encountered here and there in the section of the tumor. The cancerous element in the third tumor consisted in the extension of disease to the connective tissue. The connective-tissue corpuscles were infected by epithelial cells in such a manner that they assumed the characters of the epithelial cells from which the infecting influence issued. The epithelial cells exercised that infecting influence both in their normal position on the walls of the glandular tube, in which case the rows of cells next to the basement membrane were the first to transform themselves into the likeness of epithelium, and also after being carried into the connective tissue, in which case the infection did not spread from the margin of the glandular tube outward, but broke out at independent points in the stroma. The transformation of connective-tissue corpuscles into the epithelial cells was described and figured in detail. A certain condition of the stroma, most usually occurring after middle life, was supposed to be favorable to the establishment of cancerous infection in an epithelial organ or part in which there had been disorder of function.

44. At a recent meeting of the Société de Chirurgie an interesting discussion took place as to *the relative merits of proctotomy and colotomy in stricture of the rectum.* M. Verneuil referred to the advantages of the former operation in all cases in which it was applicable, as the most simple and least dangerous method of dealing with the disease. When proctotomy was impossible on account of the height of the disease, either the operation of Littre or that of Callisen was to be chosen, according to the seat and extent of the disease. The operation of Littre was the easier, and had the additional advantage of leaving behind it, between the artificial anus and the stricture, a shorter reservoir for fæcal matters; but no one method should be selected to the exclusion of all others, and the character of the tumor must decide the operation in any case where proctotomy was inadmissible. ═══ M. Trélat spoke of the ease with which the intestine might be confounded with the quadratus lumborum muscle, but called attention to the fact that the muscle was red, while the intestine was white. Also, with the incision which he practiced, the quadratus was only encountered in the upper part of the wound. By the method of Littre one could always be sure of the site of the anus which was formed, and more than once it had been in the small instead of in the large intestine. He believed also that the lumbar opening was less disagreeable to the patient than the inguinal. ═══ M. Després had never seen a stricture of the rectum which could not be treated as well by dilatation as by any other means, if the proper perforated sounds were used and left in position from ten to fifteen hours. He had never seen complete occlusion, probably because he had always taken great pains to avoid this complication. If dilatation with the sounds was not sufficient, he used the finger, and even passed his hand into the rectum, to find the point of stricture and dilate it. ═══ M. Pozzi had tried this treatment by dilatation, but had found its good effects to be very slight, and its evils very marked. It was seldom that a patient could be found who would submit to it for a great length of time. The same opinion was expressed by M. Trélat.

45. Mr. Whitehead has practiced the following previously undescribed *operation for hæmorrhoids* with good results: After careful preparation by previous rest in bed, diet, and laxatives, the patient is anæsthetized, and the sphincter stretched. In the case in question the mass was a large one, and divided into four imperfectly marked lobes. The lobes were divided into four segments by longitudinal sections in the axis of the bowel, and in the furrows marking the divisions of the lobes. This was accomplished without the loss of any blood. Each portion was then secured in succession with a ring-forceps and first dissected with scissors, transversely from the anal margin, and then the dissection was continued upward in the cellular plane to the highest limit of the hæmorrhoidal growths, in this case about an inch and a half. Each segment was thus converted into a quadrilateral wedge-shaped mass, the base below consisting of the hæmorrhoids, and the apex above of the healthy mucous membrane of the bowel. The mucous membrane at the highest point was next transversely divided, leaving the hæmorrhoids simply attached by loose cellular tissue, and the vessels proceeding from above and supplying the mass below. The forceps containing the hæmorrhoids was then twisted until the connection was severed and the hæmorrhoids were removed. The divided surface of the mucous membrane was next drawn down and attached by several fine silk sutures to the denuded border at the verge of the anus. The operation is completed when each portion has been treated in this manner. Scissors alone were used in the operation, and the loss of blood did not exceed two ounces.

QUARTERLY REPORT ON ORTHOPÆDIC SURGERY AND DISEASES OF THE JOINTS.

No. VIII.

By CHARLES T. POORE, M. D.,
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1. Volkmann, R.—Die ischaemischen Muskellähmungen und -Kontrakturen. "Centralbl. f. Chir.," Dec. 24, 1881.
2. Simon, R. M.—Nerve-stretching in infantile paralysis. "Brit. Med. Jour.," Feb. 25, 1882.
3. Vance, A. M.—Infantile paralysis from a surgical point of view. "Louisville Med. News," Jan. 14, 1882.
4. Gibney, V. P.—The diagnosis of Pott's disease of the spine before the stage of deformity. "Boston Med. and Surg. Jour.," Mar. 9, 1882.
5. Allis, O. H.—Can Pott's disease of the spine occurring in childhood be cured without subsequent deformity? "Phila. Med. Times," Jan. 28, 1882.

6. CORAZZA, L.—La cura della carie vertebrale e delle deviazioni della spina col metode del Prof. Sayre. "Gazz. Med. Ital., Prov. Venete," Jan. 21, 28, 1882.
7. ———.—Spinal disease and Sayre's treatment. [Editorial.] "Med. Times and Gaz.," Feb. 25, 1882.
8. ALBERT.—Ueber die Mechanik des Sprunggelenkes. [K. k. Gesellsch. d. Aerzte.] "Wien. med. Woch.," Dec. 17, 1881.
9. CARDARELLI, A.—Sopra un caso di artrite deformante unita a reumatismo cronico. "Gazz. degli Ospit.," Mar. 8, 1882.
10. HUTCHINSON, J.—Chronic synovitis, arthritis, or struma; importance of diagnosis. "Brit. Med. Jour.," Jan. 7, 1882.
11. SMITH, H.—Central necrosis of the head of the humerus; excision; recovery. *Ibid.*, Feb. 25, 1882.
12. BARKER, A. E.—Congenital dislocation of hip. [Path. Soc. of London.] *Ibid.*, Mar. 11, 1882.
13. HUTCHINSON, J.—Anchylosis of hip in flexed position; extreme deformity; Adams's operation, with good result. *Ibid.*, Mar. 4, 1882.
14. JONES.—Interstitial absorption of neck of femur following a fall on the trochanter major. *Ibid.*, Jan. 7, 1882.
15. FOSTER, S. A.—Remarks on chronic inflammation of the knee joint, with description of a new apparatus. "Ann. of Anat. and Surg.," Jan., 1882.
16. GOULD, P.—Bones from genu valgum. [Path. Soc. of London.] "Brit. Med. Jour.," Jan. 21, 1882.
17. HAYES, P. J.—Excision of the knee. "Dublin Jour. of Med. Sci.," Feb., 1882.
18. LANGTON.—Bony anchylosis of the knee after Ogston's operation. "Brit. Med. Jour.," Dec. 24, 1881.
19. SHAFFER, N. M.—The pathology, symptoms, and diagnosis of ankle-joint disease. "Ann. of Anat. and Surg.," Jan., 1882.
20. THOMSON, W.—A note on the after-treatment of some excisions of joints. "Brit. Med. Jour.," Jan. 28, 1882.
21. BENNETT, W. H.—Case of talipes equino-varus treated by resection of a portion of the tarsus. [Clin. Soc. of London.] *Ibid.*, Dec. 24, 1881.
22. PHELPS, A. M.—The treatment of double talipes equino-varus by open incision and fixed extension. "Trans. of the Med. Soc. of the State of N. Y.," 1881.
23. TERRILLON.—Du traitement des pieds bots rebelles par la résection des os du tarse. "Bull. Gén. de Thérap.," Jan. 15, 1882.
24. MACEWEN, W.—Observations touchant la transplantation osseuse. Un cas de transplantation interhumaine suivie de restauration des deux tiers du corps de l'humérus. "Rev. de Chir.," Jan., 1882.
25. REEVES, H. A.—Remarks on contraction of the palmar and plantar fasciæ. "Brit. Med. Jour.," Dec. 31, 1881.
26. STILLMAN, C. F.—A new system of surgical mechanics. "Trans. of the Am. Med. Assoc.," 1881.
27. FIORANI, G.—Sopra una forma speciale di zoppicamento. "Gazz. degli Ospit.," Aug. 30–Sept. 15, 1881.

2. Mr. Simon reports a case of *infantile paralysis* of more than three years' duration *treated by stretching the sciatic nerve.* The patient had been treated by electricity for two years. No deformity had resulted. There was free contraction of the gluteus maximus, with slight contraction of the muscles of the hand, as well as of the sartorius and the adductors. There was good response from the gastrocnemii, the peronei, the extensor proprius pollicis, and the muscles of the sole of the foot, while the anterior tibial and extensor brevis digitorum responded only faintly, and the extensor longus digitorum not at all. The child was getting worse. The operation was done antiseptically. Two months later there had been a gain of one quarter of an inch in the circumference of the right thigh and calf, respectively. There seemed to be a slight gain in the length of the limb, and there was a decided improvement in the manner of walking. Three months later it was found that, while the sound limb had gained three quarters of an inch in the circumference of the

thigh, and one eighth in the calf, the paralyzed one had gained one and a quarter inch in the thigh and three eighths of an inch in the calf.

5. In answer to the question, "*Can Pott's disease of the spine, occurring in childhood, be cured without subsequent deformity?*" the author goes into the question of the changes taking place in the body or bodies of the diseased vertebræ, and points out the fact that when there is a loss of substance it is never replaced. He quotes from Billroth that there are no instances to be found in which the substance lost through caries of the bodies of the vertebræ is replaced. Every author states that the cure is through anchylosis. If one examines a case in which the disease has been confined to one bone, its body and the adjacent vertebral cartilage are found to have melted away, the upper sound vertebra has descended so as to rest upon the first lower sound one, the spinous process has become prominent in the dorsal aspect, and the whole is finally consolidated by ossific transformation. It will also be found that the change in the shape of the spine is produced by a change in the position of the body of the vertebra. When, then, the body melts away, there is nothing left to influence its spinous process. In a growing child the spinal column increases in length like a long bone. Each segment has two epiphysal laminæ. In the destruction of a single vertebra and its adjoining intervertebral cartilage we not only have the epiphysal lamina destroyed, but, by the loss of the cartilages, we lose the lamina of the sound vertebra; so that, while the disease proper is confined to a single bone and two cartilages, the arrest in growth has extended to four ossific centers. From the moment of the onset of the disease to the time when the patient has attained his fullest development two processes must be at work—one of steady expansion and growth, the other of fixation, hindrance, and opposition. The arms, legs, and unaffected structures push onward to seemingly undue proportions, while the consolidated vertebræ and ribs distort, with firm and tireless grasp, all contiguous parts. The affected bones, fixed at an angle, control the development of the trunk and lift the scapulæ and shoulders. He asks if there is any escape in art or science from this, and answers, "Not unless we can effect a cure without anchylosis; not unless we can supply lost structures; not unless we can impart to scar tissue all the activity that healthy structure has." Spinal disease does not depart from the law of other parts of the economy as regards loss of substance. The arrest of the disease is at best a compromise, and it is all that we can do. One who has conducted a case to a successful issue—who has restored the patient to health and activity—has done all that medical skill can do.

10. In some selections from clinical lectures of Mr. Hutchinson, he expresses himself as follows in regard to *chronic synovitis, arthritis, or struma.* He roughly divides all cases of chronic synovitis into two groups—those which are connected with struma, and those which are of an arthritic nature. Under the arthritic head he comprises all that are associated with gout, rheumatism, or rheumatic gout, and all cases of gonorrhœal rheumatism, and of all these it may be said that they are expected to get well. There may be some stiffening, etc., but in the end the patients walk on the limb. It is different with the strumous group. Here the tendency is to pulpy thickening of the synovial membrane, and to incurable conditions. It may be that the destructive changes are warded off by long rest, but the patient is disabled and the limb is useless. Exercise is permitted in the arthritic group, but in the strumous group it is most injurious.

11. Mr. Smith's case of *central necrosis of the head of the humerus* was that of a man twenty-nine years of age, with a history of phthisis in his family. Eighteen months before coming under observation he fell and injured his right shoulder, and had pain in the joint. Three months before he was seen he again injured the joint. This was followed by swelling, and an abscess formed and was opened. There was dullness of the left pulmonary apex, also high temperature and night perspiration, and the patient was becoming weaker. The joint was excised. It was found that there was a piece of necrosed bone lying in a cavity in the head of the humerus. The glenoid cavity was perfectly healthy. From this date he made an uninterrupted recovery. His temperature became normal within a week. At the time of his discharge he had a useful arm, being able to perform all the movements at the shoulder joint with ease, the power to raise the arm alone being somewhat defective.

12. Mr. Barker's specimen of *congenital dislocation of the hip* was from a child who had suffered from an abscess near the hip joint, and in whom the head of the femur had appeared to be dislocated. The capsule of the hip joint was found, post mortem, to be three or four times its natural size, and the acetabulum was lined with soft granulation tissue. The femur had no head, but on the trochanteric portion was a covered surface; this was but slightly diseased. The joint seemed to have been involved secondarily by an abscess outside. The author believed that the case originally was one of congenital dislocation, founding his opinion on the looseness and large size of the capsule and the healthy state of the cartilage. He believed, from a comparison of the two sides of the pelvis, that there was some arrest of development of the os innominatum of the affected side, together with a similar arrest in the head of the femur and the ligamentum teres.

13. This was a case in which *Adams's operation for anchylosis of the hip joint* had been done six years ago. It occurred in an adult, and the deformity was due to disease of the joint in early life. The femur was fixed at considerably less than a right angle. The operation was done under Listerism. The tendons of the adductor longus, sartorius, and tensor vaginæ femoris had to be divided. The patient recovered with the limb in a nearly straight position, but anchylosed. Two years ago he had an acute abscess in his buttock. This was four years after the operation; it did not lead to bare bone. Now, two years later, he had the symptoms of another abscess forming in the same position.

14. The following case of *absorption of the neck of the femur* is reported. A man, aged 18 years, fell, striking on the trochanter major, ten months before. The injury was very slight, and was not followed by any untoward symptoms. The patient was able to continue work, although he experienced a dull, aching pain in the upper part of the injured limb. The pain was gradually followed by stiffness of the hip joint and a diminution in the length of the limb. At the date of the first examination the limb was strongly everted, an inch and a quarter shorter than its fellow, and anchylosed at the hip. The trochanter was nearer the median line, and the distance between its upper margin and the anterior superior spinous process of the ilium was half an inch less on the diseased than on the sound side. Under the influence of an anæsthetic the limb could be freely moved, rotated outward to a very unusual degree, and the head made to project behind and almost on a level with the trochanter. Examination revealed an alteration in the head, which was of an oval flattened shape. The examination made it evident that decided alteration in the head of the femur had occurred. While the patient was under observation the limb was further shortened by three quarters of an inch, so that it was quite two inches shorter than the other leg.

16. The following description of the *state of the bones in a case of genu valgum* is of interest. They were from a man 48 years of age, whose right knee became valgous at 18 years of age. There was no other evidence of rickets. The deformity was marked. The limb was amputated for synovitis of the knee joint. The inner condyle of the femur was an inch and a quarter lower than the outer, and the inner condyle of the tibia was an inch and a quarter higher than the outer. This deformity in each bone was due, not to any alteration in the thickness of the epiphysis, but entirely to obliquity of the line of junction of the epiphysis with the diaphysis. The patella was small.

17. Within the last ten years the author has performed *excision of the knee joint* fourteen times, and the paper contains the result of his experience. Of these cases, eleven were successful; two patients died, one from phthisis and one from melæna; and in one case amputation had to be performed, displacement of the bone taking place from excessive restlessness of the patient, a child 6½ years of age. Four youths were affected with pulpy degeneration, eight with articular osteitis, and two with caries; all but three of the patients were over sixteen years of age. The author does not report the amount of shortening, only stating that it was slight, and that all that recovered had good use of the limb. His mode of operating is as follows: The limb is flexed, and, the posterior margins of the femoral condyles being defined, he cuts from one to the other, straight

across the ligamentum patellæ, and into the joint. He does not attempt to clear the posterior aspect of either the femur or the tibia before applying the saw. He always uses Lister's dressings. The limb is placed on a posterior splint consisting of a thigh- and leg-piece united by a single iron bar placed posteriorly, so bent as to form an oblique step about three inches long, and having the end to which the leg-piece is attached exactly one inch in advance of that fixed to the thigh-piece. This is applied with a bandage and plaster of Paris. Whenever he has to deal with a cavity in the cancellous tissue of either femur or tibia, it is scooped out, and then mopped out with a chloride-of-zinc solution. He controls the oozing after the removal of Esmarch's bandage by the application of sponges wet with *very* hot carbolic-acid solution.

18. Mr. Langton reports a case of *anchylosis of the knee after Ogston's operation for genu valgum.* The operation was done two years and a half ago by the late Mr. Callender. It was followed by a severe attack of synovitis of the knee. The patient remained in the hospital for some time, and was finally sent out with a straight limb and a knee firmly anchylosed. The knee had gradually become slightly flexed, so that when he presented himself the joint was fixed at an angle of about 120°.

21. Mr. Bennett reports a successful case of *resection of a portion of the tarsus for talipes equino-varus* in a man 47 years of age. The section was removed with a chisel, and the tendo Achillis was divided. The operation was performed antiseptically. The portions of bone removed included the cuboid and scaphoid. No constitutional disturbance of any kind followed the operation. The dressings were changed for the first time eight days after the operation; the wound had then healed, excepting at its extremities, where the drainage-tube was lying. In a few days all had closed except a small sinus, and the antiseptic dressings were discontinued. A few days later erysipelas attacked the foot, cellulitis followed, the wound had to be opened, and all union between the bones broke down. In time the wound again closed, and the parts became firmly consolidated. The foot was somewhat shortened; the anterior part of the sole was as nearly as possible flat. The union at the point where the bones were resected was firm but not bony. The gait was better than before the operation, and was gradually improving. This was the oldest patient on whom the operation had been done.

25. In some remarks on *contraction of the palmar and plantar fascia* the author states that contraction of the palmar fascia is not so uncommon among females as some writers seem to think, and mentions playing on the piano as often the starting-point of the deformity. He has also seen patients in whom it began as early as the fifteenth or twentieth year. He recognizes several causes of this contraction: 1. The rheumatic or gouty diathesis; 2, injury; 3, occupation; 4, heredity; 5, neurosis. The first set of causes affects the fasciæ alone; the second, both fasciæ and tendons, according as the injury has been an incised or a lacerated wound. Occupation may claim a large percentage of cases, as it is not uncommon in boatmen, coachmen, sailors, bootmakers, writers, and even in those who have for years carried a walking-stick and borne their weight upon it. Under the neurotic heading he includes hysteria and the so-called *spastic* cases. He has seen contraction of the *plantar* fascia (quite independent of talipes) from the causes enumerated. One case was that of a sailor who was much in the rigging barefooted.

Miscellany.

ARMY INTELLIGENCE.—*Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from March 14, 1882, to April 13, 1882.*—ALEXANDER, R. H., Major and Surgeon. Having reported at these Headquarters, will report to the commanding officer, District of New Mexico, Santa Fé, for duty as attending surgeon at District Headquarters, and post surgeon, Fort Marcy, New Mexico. S. O. 59, Department of the Missouri, March 20, 1882. ═══ Greenleaf, Charles R., Major and Surgeon. Relieved from duty in Department of Dakota, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 78, A. G. O., April 5, 1882. ═══ Woodhull, A. A., Major and Surgeon. Now awaiting orders, to report in person to the commanding officer of the recruiting depot, David's Island, New York Harbor, for duty at that post. S. O. 78, C. S., A. G. O. ═══ Williams, John W., Major and Surgeon. Relieved from duty in Department of the Missouri, to proceed to Washington, D. C., and report to the Surgeon-General. S. O. 78, C. S., A. G. O. ═══ Waters, W. E., Major and Surgeon. Relieevd from duty in Department of Texas, to proceed to Washington, D. C., and report to the Surgeon-General. S. O. 78, C. S., A. G. O. ═══ Jaquett, G. P., Major and Surgeon. Relieved from duty at David's Island, New York Harbor, to proceed to his home and report by letter to the Surgeon-General. S. O. 78, C. S., A. G. O. ═══ Brown, H. E., Major and Surgeon. Having reported at these Headquarters, will proceed to Jackson Barracks, La., and report to the commanding officer for duty. S. O. 32, Department of the South, March 14, 1882. ═══ Brown, J. M., Major and Surgeon. Relieved from duty in Department of the Missouri, to proceed to Cincinnati, Ohio, and, on arrival, to report by letter to the Surgeon-General. S. O. 78, C. S., A. G. O. ═══ Tremaine, W. S., Captain and Assistant Surgeon. Assigned to duty at Fort Porter, N. Y. S. O. 51, Department of the East, March 24, 1882. ═══ Cleary, P. J. A., Captain and Assistant Surgeon. Relieved from duty in the Department of the East, and, on expiration of his present sick leave of absence, to report by letter to the Surgeon-General. S. O. 78, C. S., A. G. O. ═══ Dickson, J. M., Captain and Assistant Surgeon. So much of paragraph 2, S. O. 51, C. S., as relates to him is revoked, and he will proceed to Fort McHenry, Md., and report to the commanding officer for duty at that post. S. O. 52, Headquarters Department of the East, March 25, 1882. ═══ Cronkhite, H. M., Captain and Assistant Surgeon. Granted leave of absence for four months from June 1, 1882. S. O. 80, C. S., A. G. O. ═══ Carvallo, Carlos, Captain and Assistant Surgeon. The extension of his leave of absence on surgeon's certificate of disability granted him in S. O. 256, November 12, 1881, from A. G. O., is still further extended six months, on account of sickness. S. O. 80, A. G. O., April 7, 1882. ═══ Lauderdale, J. V., Captain and Assistant Surgeon. Having reported by letter to these Headquarters, is assigned to duty at Fort Sully, Dakota Territory, to which post he will proceed and report for duty. S. O. 47, Department of Dakota, March 27, 1882. ═══ Mosely, E. B., Captain and Assistant Surgeon. Relieved from duty in Department of the Platte, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 78, C. S., A. G. O. ═══ Maus, L. M., Captain and Assistant Surgeon. Relieved from duty at David's Island, New York Harbor, and to report in person to the commanding general, Department of the Missouri, for assignment to duty. S. O. 78, C. S., A. G. O. ═══ Kilbourne, H. S., Captain and Assistant surgeon. Relieved from duty in Department of the East, and to report in person to the commanding general, Department of Dakota, for assignment to duty. S. O. 78, C. S., A. G. O. ═══ Taylor, M. E., Captain and Assistant Surgeon. Relieved from duty in Department of the Missouri, to proceed to St. Louis, Mo., and, on arrival, report by letter to the Surgeon-General. S. O. 78, C. S., A. G. O. ═══ Gardiner, John de B. W., Captain and Assistant Surgeon. To report in person to the commanding general, Department of Arizona, for assignment to duty. S. O. 71, A. G. O., March 28, 1882. ═══ Spencer, William G., Captain and Assistant Surgeon. Granted leave of absence for four months, with permission to apply for an extension of two months. S. O. 80, C. S., A. G. O. ═══ Gardner, Edwin F., Captain and Assistant Surgeon. To report in person to the commanding general, Department of the Columbia, for assignment to duty. S. O. 71, A. G. O., March 28, 1882. ═══ Corbusier, W. H., Captain and Assistant Surgeon. Now awaiting orders, to report in person to the commanding general, Department of the East, for assignment to duty. S. O. 78, C. S., A. G. O. ═══ Robinson, Samuel Q., Captain and Assistant Surgeon. To report in person to the commanding general, Department of the Columbia, for assignment to duty. S. O. 71, A. G. O., March 28, 1882. ═══ Davis, W. B., Captain and Assistant Surgeon. Now awaiting orders, to report in person to the commanding general, Department of the Platte, for assignment to duty. S. O. 78, C. S., A. G. O. ═══ Cherbonnier, A. V., Captain and Medical Storekeeper. Granted leave of absence for four months on surgeon's certificate of disability. S. O. 77, A. G. O., April 4, 1882. ═══ King, William H., Captain and Assistant Surgeon. To be relieved from duty in the Department of the East on receipt of this order, and then to proceed to his home. Granted leave of absence until further orders, on account of sickness. S. O. 82, A. G. O., April 10, 1882.

Marine-Hospital Service.—*Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service, January 1, 1882, to March 31, 1882.*—Bailhache, P. H., Surgeon. To proceed to Richmond, Virginia, as inspector, January 31, 1882. ═══ Vansant, John, Surgeon. Detailed as President Board ot Survey—physical examination of officer of Revenue Marine Service, March 18, 1882. ═══ Wyman, Walter, Surgeon. When relieved by Surgeon Austin, to proceed to Baltimore, Maryland, and assume charge of the service at that port, March 4, 1882. ═══ Fessenden, C. S. D., Surgeon. To proceed to Greenport and Sag Harbor, New York, as inspector, January 26, 1882. Detailed as President Board of Survey for the physical examination of pilots, to meet at Boston, Massachusetts, February 16, 1882. February 7, 1882. ═══ Purviance, George, Surgeon. To proceed to Gloucester, Massachusetts, to extend relief to shipwrecked seamen, January 12, 1882. Detailed as Recorder Board of Survey for the physical examination of pilots, to meet at Boston, Massachusetts, February 16, 1882. February 7, 1882. ═══ Austin, H. W., Surgeon. To proceed to Cincinnati, Ohio, and assume charge of the service at that port, relieving Surgeon Wyman, March 4, 1882. ═══ Godfrey, John, Passed Assistant Surgeon. When relieved by Passed Assistant Surgeon Goldsborough, to proceed to New Orleans, Louisiana, and assume charge of the service at that port, March 4, 1882. ═══ Goldsborough, C. B., Passed Assistant Surgeon. When relieved by Surgeon Wyman, to proceed to Mobile, Alabama, and assume charge of the service at that port, March 4, 1882. Granted leave of absence for eight days, March 24, 1882. ═══ Irwin, Fairfax, Assistant Surgeon. Granted leave of absence for seven days, January 18, 1882. ═══ O'Connor, F. J., Assistant Surgeon. To report to General Superintendent Life Saving Service for duty as member of Board to examine keepers and crews of the Life Saving Service, January 4, 1882. Relieved on account of sickness, and directed to report to surgeon in charge, New York, N. Y., for temporary duty, January 18, 1882. To proceed to Detroit, Michigan, and report for duty to the surgeon in charge, February 9, 1882. ═══ Banks, C. E., Assistant Surgeon. To proceed to Portland, Oregon, and assume charge of the service at that port, March 1, 1882. ═══ Devan, S. C., Assistant Surgeon. Detailed as Recorder Board of Survey, physical examination of officers of the Revenue Marine Service, March 18, 1882. ═══ Urquhart, F. M., Assistant Surgeon. To report to General Superintendent Life Saving Service for duty as member of Board to examine keepers and crews of the Life Saving Service, January 18, 1882. ═══ Kalloch, P. C., Assistant Surgeon. To proceed to New York, N. Y., for temporary duty, January 24, 1882. *Resignation.*—Hebersmith, Ernest. Resignation as surgeon accepted, to take effect November 26, 1881. January 17, 1882. *Promotion*—Smith, Henry, Surgeon. Promoted and appointed surgeon from January 20, 1882. January 20, 1882. *Appointment.*—Kalloch, Parker C., M. D., of Pennsylvania, having passed successfully the examination required by the regulations, was appointed an assistant surgeon, by the Secretary of the Treasury, January 23, 1882.

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A NEW NERVOUS CONNECTION BETWEEN INTRA-CRANIAL DISEASE AND CHOKED DISC.*

BY EDWARD G. LORING, M.D.

If in these days of experimentation—I had almost said over-experimentation—there was ever any excuse for hypothesis and speculation, those who have put forth the various theories in regard to choked disc are entitled to it, since, from the very nature of the disease, and from the nature and position of the parts affected, direct experimentation is impracticable if not impossible, so that the conditions presented by a morbid growth can never be imitated by an artificial lesion, much less paralleled.

It would seem, then, as if the only course to pursue in the solution of this problem was to take the anatomical, physiological, and clinical facts as they from time to time present themselves, and to endeavor to arrive at a conclusion, if not directly from induction, at least by exclusion; and it is with this hope, or at least under this instigation, that the following observations are made.

Moreover, if the soundness of a theory is to be measured by its capability of fulfilling all the conditions imposed upon it, and of opposing all the objections which can be raised against it, then it must be admitted that the various theories which have been proposed to account for the appearances and effects of choked disc have been insufficient to meet all the exigencies of the case. I do not mean by this that there are not isolated cases which can be explained by this or that theory, for here, as well as in other morbid conditions, the causes of irritation may be various, and yet the results be one and the same. But what I do mean to say is, that there are frequent examples of well-marked choked disc the cause of which no one theory, or any combination of theories now existing, can satisfactorily explain. But, before proceeding to a discussion of a new theory of choked disc, I should like to reduce the problem to its simplest conditions, for the want of which it seems to me much that has complicated the subject has been introduced, and much that is absolutely erroneous has been inculcated.

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* Read before the New York Ophthalmological Society, April 21, 1882.

It has often struck me that one source of error, and that the most important one, was the too close adherence to the manifestations gathered from the post-mortem examinations; and much has been taken, in my opinion, for evidence in regard to causation which was simply the accompaniments of the disease and the symptoms of approaching dissolution; and this is especially true in regard to the manifestations of cerebral œdema and increased subarachnoidal fluid.

Now, it is well known, and indeed of common occurrence, that a person may have choked disc of marked character without the slightest manifestation of any trouble, either bodily or mental, beyond an occasional headache or a slight vertigo, and with very little or even no disturbance of his vision or other special senses, and that he may continue so, not only for months, but even for years. To suppose that such a person is attending to the complicated affairs of life with no bodily ailment, with no paralysis, or even reduction in force of any of his limbs or particular muscles, and with no impairment of his intellectual powers, and yet is walking about with an increased intra-cranial pressure so great as to interfere with the circulation of the principal sinus of the head, would seem to be absurd, as it is even more so to suppose that he is doing all this with a general œdema of his brain, and with his ventricles and subarachnoidal spaces all a swash, as the sailors have it, with increased and pent-up cerebro-spinal fluid. Had this been kept in mind, I can not help thinking that much that has been laid down in the advancement of all the so-called mechanical theories (Graefe's, Schmidt's, Parinaud's, and others) would have been considered as the effects of the tumor, rather than the causes of the papillitis.

The true point is, not that choked disc is not found with all these signs and symptoms, but that it may exist, and is often found, *without* them. The only way in which I think a fair, differential estimate could be made between cause and effect by an autopsy would be in the case of sudden and accidental death in one in whom choked disc had been previously observed by the ophthalmoscope, and who at the time of such accidental death was as near a perfectly normal state of health as possible. I know of no such case; though, now that the ophthalmoscope is used so generally, there may be such in future. The only case known to me which at all approaches the conditions stated above is that reported by Dr. Mathewson to this society. The case in brief was that of a lady of forty-five, in whom slight attacks of vertigo were the only evidence of cerebral trouble during the entire course of the disease, and even these were becoming less frequent and less severe. There was no paralysis, no derangement of sensation, and no impairment of intellect. There were some symptoms of dyspepsia, but her general health was otherwise good. There was well-marked choked disc on both sides, and great reduction of vision. Tumor of the brain was diagnosticated. Four years later the patient died very suddenly while in good health, and a sarcomatous tumor of the size of an English walnut was found in the anterior lobe of the right cerebral hemisphere. There were, however, no abnormal appearances of any kind in the brain, except the tumor itself and its attachments, though the autopsy was made with the greatest care and thoroughness, for the purpose of detecting, if possible, the cause of the sudden and unexpected death. Nothing was found.

Bearing in mind the possible well-being of the patient, I would say a few words in regard to the adventitious product in the head. This may be a growth of a very small size—say that of a cherry—in the pons or cerebellum, or a small exostosis at the base; and, though, of course, there are places of preference, the growth or morbid product may occupy any position. I will also remind you that, so far as the eye is concerned, the neuritis and its effects may be intra-ocular, and may not extend farther back than the lamina cribrosa, as has been shown over and over again by the most competent microscopists.

The problem, then, reduced to its simplest terms, is, the bodily and mental functions being undisturbed, we have a local irritation in one place finding its expression in a remote region, the intervening tissues being normal. Such a condition as this can only take place, it appears to me, through the agency of the nerves, and the only question consistent with the laws of anatomy and physiology is, What are the nerves through which the irritation is conducted? The answer given by Benedikt[*] is, the sympathetic system; and, as Benedikt's hypothesis is intimately connected with what I shall have to say, I will state his conclusion in his own words as translated by Allbutt:[†]

"Thus we see that localized intra-cranial diseases set in with vaso-motor disturbances which affect the whole or a great part, and remote districts of the brain, and among other things neuro-retinitis appears as a sign of this vaso-motor excitement. No one will look upon this widespread vaso-motor disturbance as a diffuse irritation of particular vessels; in local affections within the skull we have rather to deal with coincident or preceding neuroses of the sympathetic fibers, with a local fever, as it were. Symptomatic neuro-retinitis, thus, in most cases depends upon a morbid innervation of the sympathetic, which again is a symptom of manifold cerebral processes. . . . All these processes depend upon sympathetic vaso-motor disturbances which in particular places, for instance, in the lining of the ventricles and in the optic nerves, have a special tendency to become chronic and to beget secondary trophic disturbances. In the case of the discs, this special disposition is explained by the passage of the vessels of the retina through the rigid fibrous capsule of the sclerotic."[‡]

As I understand this, it asserts very distinctly that optic neuritis is merely one of a set of widespread vaso-motor disturbances which affect the whole or the greater part of the brain, and that the reason these disturbances obtain a permanent expression in the eye is the peculiar anatomical construction of the head of the optic nerve and scleral opening. This is certainly ingenious, and as bold as it is ingenious, in the face, as it is, of the fact that there are plenty of patients who while living have never given any signs of these widespread vaso-motor disturbances, and not a few who have actually died from the effects of tumor, and in whose cases the an-topsy has not shown any trace of vascular trouble in the brain. Moreover, the conditions are wide and general enough to fit any case of cerebral disease as well as a localized growth.

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[*] Gowers's assertion, that Schneller was the first to hint at vaso-motor disturbance as the cause of choked disc, would not appear to follow from the paper he quotes, as Schneller gives a long and minute account, in which he attributes the entire trouble to an impediment in the circulation from increased pressure upon the cavernous sinus. It is, from first to last, an explicit acceptation of Graefe's mechanical theory. What Schneller does say is, that a cause for certain changes in the back of the eye might, he thought, be attributed to some affection of the centers of the nerves which regulate the blood supply of the vessels of the eye, and he quotes Marfels as to the fact that section of the trigeminus produces dilatation of the retinal vessels. But he says he has never seen any cases in which changes from such causes had taken place.—"Arch. f. Ophth.," vii, 1, p. 71.

[†] "The Ophthalmoscope," p. 122.

[‡] "Elektrotherapie," Wien, 1868, pp. 249, *et seq.*

The general ambiguity of the whole thing seems also to have struck Benedikt, for in a later publication he again takes up the subject and endeavors to bring it into narrower and more definite limits. Thus, he says:

"For the choked disc which accompanies brain disease, and for the neuro-retinitis which begins peripherically, all clinical facts go to support the anatomical supposition that from numerous parts of the brain, which may either stand or not stand in functional relationship with the optic nerve, irritation can be generated which can produce disturbances in the disc, and which, owing to the special condition governing the tension and circulation of the bulb and papilla, render a return to the normal equilibrium difficult, and which can take on the character of an inflammation. The vaso-motor root for the vessels of the peripheric portion of the nerve can arrive at these vessels through the most different paths, as, for example, through the cord of the sympathetic in the neck, and one of these paths might be the optic nerve itself. That such a root actually exists, and runs with the optic nerve, is, indeed, at the present moment, probably an established anatomical fact." *

Passing over the detailed objections to this theory which have been so eloquently urged by Allbutt and others, it would appear that, even if we accept Benedikt's conclusion, the manner in which the subject now stands renders it incomplete and unsatisfactory. It is merely an hypothesis and not a theory—an assertion of a cause without any attempt at a demonstration. Thus, there is not a word to show through what channels or through what nerves the irritation is conveyed from the local disorder to the vaso-motor root through which, according to Benedikt, the "morbid innervation of the sympathetic is produced."

Two principal points in the vaso-motor theory still need explanation, it seems to me. The first is, to show how the nervous influence is conducted to the head of the nerve without affecting intermediate structures. Secondly, to show whether morbid innervation of the sympathetic, unaided, has the power of producing not merely a circulatory change, but a genuine interstitial neuritis.

First, a word in regard to the anatomical distribution of the sympathetic fibers. It has been proved,† it seems to me, beyond a doubt, that sympathetic fibers arrive at the eye through various

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* "Nervenpathologie und Elektrotherapie," 1876, pp. 404, 405.

† Tiedmann, Langenbeck, Ribes, Krause, Schwalbe, and others.

channels, and accompany not only the ophthalmic but also the central artery of the retina, at least as far as the disc, and probably much farther, into the retina itself, "following," as Franck says, "the general law and not abandoning the ramifications of the branches to which they are distributed, no matter how delicate these become."[*] The same is true of the choroid and the whole uveal tract. Moreover, physiology teaches us that, if we divide the cervical sympathetic, or extirpate the upper cervical ganglion, the circulation in all of the vessels going to that side of the head, both external and internal, is increased; the pia mater becomes injected, as do the ear, the cheek, and the conjunctiva, as well as the iris. It is, moreover, directly asserted by Leber[†] that the retinal arteries are innervated by the filaments from the cervical sympathetic. He states, however, that section of the nerve produces only a slight dilatation of the arteries, and declares that "whether the slight effect of section of the nerve is to be attributed to the action of the intra-ocular pressure, or other causes, could not be determined." O. Becker also says that the effect upon the retinal arteries was much less than upon the vessels of the ear.

Klein and Svetlin,[‡] after carefully isolating the sympathetic in the neck in cats, got no effect whatever upon the retinal vessels or those of the optic nerve, either by irritating the divided end of the nerve, or the entire cervical portion, or by extirpation of the ganglion.

Others, it is true, have got what they claim to be decided effects by irritation and division. But it appears to me, after a careful examination of the evidence, that the weight of authority is in favor of the fact that the effects on the circulation of the retina and optic nerve by experimentation on the cervical sympathetic are, though perceptible, very slight, and that the contraction which takes place by irritation is much greater proportionately than the dilatation which follows section or extirpation. Also the disproportion mentioned by Becker between the effects of section of the nerve upon the ear and external parts of the head, and those upon the back of the eye, would seem to hold good even to a greater degree in man than in animals. Thus, Mitchell,[*] Ogle,[|] and Samelsohn[▲] have reported cases where the cervical sympathetic was affected, and where all the symptoms of vaso-motor paralysis were present, such as flushing of the ear and cheek with increased temperature, injection of the conjunctiva, and contraction of the pupil, and yet no change to be detected with the ophthalmoscope in the retinal vessels or those of the optic nerve. The more modern literature has many other cases of injury and disease of the cervical ganglion, with all the signs of vaso-motor disturbance in the parts dominated by it, and yet either no observable change in the retinal circulation, or, at the most, only "a slight hyperæmia of the disc"; and what this means we all know, and that it may and often does last a lifetime. Not a single case of even the slightest retinitis or neuro-retinitis can I find in all the literature of these cases, let alone a genuine choked disc.

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[*] "Recherches sur les Nerfs Vasculaires de la Tête." Par le docteur F. Franck. Travaux du Laboratoire de M. Marey, 1878, p. 282.

[†] Graefe and Saemisch, vol. ii, p. 353.

[‡] "Wien. med. Presse," 1877, No. 4.

[*] "Injuries of Nerves," p. 319.

[|] "Medico-Chir. Trans.," vol. lii, p. 151.

[▲] Graefe's "Arch.," xxi, 3, p. 69.

So, too, when artificial vaso-motor paralysis* is produced by nitrite of amyl, not only do the ear and cheek become flushed, but there are sensory symptoms from dilatation of the cerebral vessels, and yet the circulation of the retina, which is a direct offshoot of these very vessels, is comparatively unaffected.

There would seem to be a good reason for this in the different conditions of the vessels of the retina, the arteries of which do not pulsate visibly in the normal condition, which is evidently due to the counterbalancing effect of the intra-ocular pressure, which maintains an exact equilibrium between the increased impulse of the systole of the heart on the one side and the contents of the globe on the other; for, if the pressure is reduced by letting off the aqueous humor, then the arteries pulsate as do the other arteries of the body. This is evidently also the reason why the contraction of the vessels is greater under irritation than the dilatation is under extirpation of the ganglion, for the intra-ocular tension would favor contraction, while it would oppose dilatation.

But it may be asserted that, besides the upper cervical ganglion, there is another vaso-motor center for the retina and nerve. This is very true; there may be another center. It has never been found, however, and, even if it were, and other sympathetic fibers besides those now known were traced from this center to the eye, even then it is fair to assume, judging from the very slight effect produced by irritation or paralysis of the fibers we do know about, that a similar want of effect would be produced by the morbid innervation of those of which we know nothing.

For this reason, if for no other—and there are many more which have been urged by Allbutt and others—it would seem as if Benedikt's theory, as he has stated it, or as it has been modified lately by Hughlings Jackson,† was not sufficient, either in its exposition, or, indeed, in its nature, to account for the connection between choked disc and intra-cranial disease; and that we are not only justified but compelled to turn to some other agency than the isolated fibers of the sympathetic system for the true explanation of the way in which the morbid innervation produced within the head is conducted to the disc, as well as for the results which are produced by such morbid innervation.

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* Wadsworth and others.

† "Med. Times and Gaz.," March 19, 1881, p. 316.

I would, therefore, call attention to a nerve of a different species, the trigeminus, the great sensitive nerve of the head.

In the first place, clinical experience teaches us that irritations of the peripheric fibers of the fifth pair may produce grave ocular troubles. Thus, tumors or disease of either the upper or lower jaw, or even irritation from defective teeth, may produce not only conjunctival injection with hyperæmia of the iris, but also a grave deterioration of vision, and this latter oftentimes with no disturbance of the eye which is outwardly visible. Moreover, this amblyopia may affect not only the eye of the side on which the irritating focus is situated, but also the other eye as well. I have myself seen a case of intense supra-orbital neuralgia of the left side which lasted off and on for several months, and in which the vision was gradually reduced to one fourth on one side and one third on the other, while at the time I saw the patient there were plain signs of commencing atrophy of the optic nerve. The neuralgia finally ceased, and I now learn that the vision, though not fully restored, is much improved.

These cases of grave amblyopia showing implication of the nerve from distant irritations of the fifth pair, though rare, are common enough to be within the experience of everybody, and were noted even in pre-ophthalmoscopic times; and it is not essential to dwell more upon them here. They are merely mentioned to show that peripheric irritation of all the branches of the fifth pair may show itself upon the optic nerve, even when the fibers involved are not those which are directly connected with the eye itself, but which are directed to and intended for the functions of other organs. That these troubles are due to nerve irritation is proved by the fact that when the cause of the irritation is removed the trouble ceases, and the vision may be either partially or entirely restored. If this can take place with such fibers as do not go directly to the eye, it ought to occur in a more marked manner, and in a more pronounced degree, when the nerves which are distributed to the eye itself are involved.

It will only be necessary for me to call attention to what appears to me the most remarkable example of reflex action in the production of disease which occurs in the body. I allude, of course, to the mysterious connection which exists between an eye which has a focus of irritation within it and the fellow-eye, and the wonderful way in which the effects of the irritation are conveyed to the opposite eye, the intervening tissues and organs being sound. Here I shall be met with the assertion that the old idea, that the irritation capable of producing a real inflammation is conveyed through the ciliary nerves, is now held by some high authorities to be erroneous. This is certainly not the place to discuss so complicated a theme, nór to go into fine-drawn distinctions between sympathetic irritation and sympathetic inflammation, especially as I believe that the only fact I need for my argument is the fact that "irritation" may be conveyed from one eye to the other through the ciliary nerves. That this is so conveyed seems to me indisputable, for how else can we account for the fact that the so-called sympathetic irritation in the uninjured eye stops at once the moment the offending eye is removed; and not only this, but that the same favorable result will often be obtained when only the anterior half of the eye is removed, or even when no part is taken away, but only the posterior branches of the ciliary nerves are severed? That these last two methods should not be so efficient as the former is natural, and only goes to support the view that the evil influence is transferred by means of the ciliary nerves here, as it is when the peripheric fibers of the nasal, superior maxillary, or inferior maxillary are irritated.

That such irritations, after existing for a long time, may gradually develop or suddenly explode into active inflammations from purely extraneous causes, such as a slight blow, exposure to the extremes of climate, over-exertion either bodily or mental, is a clinical fact known to all.

Again, that an irritation from one eye may so reduce the vitality and power of resistance in the second eye as to lead directly to an actual sympathetic inflammation through the ciliary nerves is, I think, proved for "inflammation," as it is for "irritation," by the fact that, even where there are signs and symptoms of commencing inflammation, enucleation often arrests its progress, provided it is performed early enough. That it will not always do this, only shows that, when the process has reached a certain stage, a certain curative means is not sufficient. After the fire is well under way it makes very little difference if the torch that lighted it is removed. With a foreign body in one eye and a slight ciliary injection in the other—with, say, a minute adhesion of the iris—no careful surgeon would hesitate a moment in doing an enucleation. The same line of argument seems to me to apply to the migration of micrococci. No enucleation could possibly be followed by success were there the slightest possible signs of actual inflammation in the fellow-eye. Nor can I see why the micrococci should travel backward along one optic-nerve tract, and forward along the other, without being carried to different parts of the head, and there producing the most violent kind of septicæmic meningitis, as in those rare cases where death has ensued so rapidly, and where at the autopsy micrococci have been found in the middle ear.

It having been shown that irritation is capable of producing morbid conditions at a distance, through the agency of the peripheric ends of the branches of the trigeminus, and especially the ciliary nerves, it remains to be shown whether there are any fibers within the head capable of producing the same result, and for this purpose I shall have to refer for a moment to anatomy.

As is well known, the ophthalmic branch of the fifth pair, which presides over the nutrition of the eye, just before it leaves the head sends back on each side a branch that is known as the recurrent branch of the ophthalmic nerve. These branches, after ramifying over the entire surface of the tentorium, pass on to the various sinuses in the walls of which they are distributed. Thus, the external branches, or those farthest from the median line, go to the superior petrosal sinus, and then to the lateral sinus, as far back as its junction with the longitudinal sinus at the torcular, where they meet the fibers from the opposite side. The more central filaments, or those toward the median line, are distributed to the venæ Galeni, and have already been traced some way up the falx. They are also distributed to the walls of the straight sinus, while still other filaments pass down to the transverse sinus. Thus it will be seen that all the principal sinuses and veins of the center and base of the head are supplied by this nerve, and that it deserves the name given it by Luschka of the sinus-nerve. Moreover, in the walls of the cavernous sinus is contained the trunk of the ophthalmic nerve itself, while branches from the nasal nerve, from which the ciliary nerves are derived, and which is itself a branch of the ophthalmic, go to the anterior parts of the dura mater into the regions around the foramen cœcum and into the frontal sinuses. Nor is this all, for Duret,* in his late work, is of opinion, from effects which he has noticed when they are irritated, that the nervous filaments from the dura mater, all of which are derived from the fifth pair, project into the substance of the various special nervous apparatus, while sensitive fibers have been actually found in the posterior parts of the peduncular expansions by himself, Carville, Veyssières, and Raymond.

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* "Études Expérimentales et Cliniques sur les Traumatismes Cérébraux." H. Duret, Paris, 1878, p. 264.

It is difficult to form an idea of the extent of surface over which the branches of the recurrent ophthalmic nerve extend without looking at a well-constructed diagram, or, better still, a horizontal section of the skull. Especially with the latter will it be seen that the entire cerebellum is inclosed in every direction, nearly down to the occipital foramen, with these nervous filaments, and what is true of the upper surface of the cerebellum is true also of the lower surface of the middle and posterior portions of the cerebrum. Thus we have a tense membrane, the tentorium, interwoven with a tracery of the most delicate nervous filaments, and the most susceptible of any in the body to mechanical irritations, situated between two soft solids, any distension of either of which must produce, either by compression or by extension, some form of irritating influence upon the fibers. Then, again, some of these filaments, being distributed to the venæ Galeni and the straight sinus, are brought into the very center of the brain, while the pons Varolii stands exactly opposite and in immediate contact with the transverse sinus, to which fibers from the recurrent ophthalmic go from each side of the head. From this wide extent and diversity of position of its fibers, distension, even if a local one, in any direction, be it upward or downward or sidewise, must act upon some of the nervous filaments; and this would be doubly true with the sinuses, the walls of all the principal ones of which contain these same fibers. Any pressure against these walls, as their contents are liquid, and, therefore, incompressible and unmovable except by displacement into other channels, must act directly on these nervous fibers; and that these would naturally suffer from compression before the caliber of vessels with such resisting walls could be lessened is self-apparent.

Now, if any focus of irritation should be so placed in any part of the brain as to act upon these nervous filaments, either by direct enslavement of the fibers or by their being surrounded by irritating matter of any kind, or affected by such, even by indirect propagation by subtle changes in the nerve substance, then there is no reason why such fibers, they being centripetal, should not convey such irritation backward to the Casserian ganglion, or even to the centers of the fifth pair. From thence the irritation would be carried outward on the centrifugal fibers of the same nerve to the ciliary ganglion, and thence through the ciliary nerves to the posterior parts of the eye and optic nerve, to which modern investigation has shown these nerves are distributed. Thus, Sappey, in speaking of what he names the nervi nervorum, and which perform, according to him, the same offices to the nerves as the vaso-motor fibers do to the vessels, says: "The external sheath of the optic nerve is extremely rich in nervi nervorum, no other nerve in the body being comparable to it in this respect. All these filaments take their origin from the ciliary nerves. These nervi nervorum follow in general the course of the vessels, but they are oftentimes separated from them, and sometimes entirely independent of them."* Schwalbe, in his "Lehrbuch der Neurologie," just published (1881), says: "The central artery and vein are, during their course in the interior of the optic nerve, surrounded by a fine ganglionless nervous plexus (Krause)" (p. 817); and then adds: "From the ciliary nerves fine branches go to the optic nerve in order to extend themselves partly to the dural sheath (Sappey), and partly to pierce into the nerve and to accompany the central vessels" (p. 821).

Thus we see that precisely the same kind of nerves, from precisely the same origin, go to the posterior parts of the eye, including the optic nerve, as to the anterior portions, and there is no reason why injury, irritation, or paralysis of the fibers going to the posterior part should not be followed by malnutrition, even when the immediate cause of the irritation is at a distance, just as it is with the cornea, ciliary body, and uveal tract when certain fibers of the fifth pair are affected, or, better still, as in the case of sympathetic trouble. This is a perfectly legitimate physiological action, and one which takes place with other sensory nerves. Bernard, Brown-Séquard, and Vulpian have long ago shown that excitation of sensory nerves can determine, locally or at a distance, vaso-motor troubles of great intensity, and have given the name of vaso motor reflexes of the sensory nerves to such phenomena; and Vulpian † says that the same phenomena are manifested under the influence of irritation of the trigeminus and of almost all the sensory nerves, as well as the posterior roots of the spinal nerves, and Duret ‡ asserts that the nerves of the dura mater, which are branches of the trigeminus and are centripetal nerves, have analogous properties as conductors, and that irritations, whether mechanical or chemical, excite intense vascular trouble in both eyes and in both hemispheres, the effect taking place first on the injured side and a little later on the opposite side (*op. cit.*, p. 278).

Here we have two important factors: first, that irritation of a sensory nerve may produce a vascular disturbance at a distance;

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* "Jour. de l'Anat. et de la Physiol.," vol. v, 1868, p. 51.

† "Appareil Vaso-Moteur," vol. i, p. 238.

‡ *Op. cit.*, p. 272.

and, secondly, that, so far as the nerves of the dura mater are concerned, a one-sided irritation may produce a bilateral disturbance, so that both eyes are affected; and this fact not only offers the first rational and physiological explanation of how a bilateral neuritis can be produced from a one-sided lesion, but it is also a very strong argument in itself to show that it is over the nerves of the dura mater and its folds that the irritation is conveyed.

But it may be urged that, although it is not strange that the irritation should be propagated to the eye over the course pointed out, it is certainly a little strange that the effect should be limited, at least in its beginning, to so circumscribed a region. It is surely no more strange than that a foreign body in the ciliary region of one eye should produce an inflammation in precisely the same spot in the other eye. That the trouble may extend itself over other parts of the eye is true, but I have seen well-marked cases of sympathetic trouble confined to the ciliary region, and where the back of the eye was perfectly normal. So, too, does choked disc extend itself into a marked neuro-retinitis, involving the whole retina and sometimes implicating the choroid.

This limitation of the effect will not appear so strange when we take into consideration that the peripheric fibers of the ciliary nerves are not all delivered to the same antero-posterior plane. Thus, some of the fibers are distributed to the cornea, others to the iris, some to the ciliary muscle, and others, again, successively to the posterior parts of the choroid, the optic nerve, and its sheaths. We have, too, marked examples of limitation of effect from nerve disturbances. Thus, we may have a paralysis of fibers going to the iris, with complete dilatation of the pupil, and yet the accommodation remain unaffected—or the reverse, a paralysis of the accommodation and none of the iris. That there are different centers corresponding to these different fibers has been shown to be the case in the anterior parts of the eye, and there is no reason why there should not be for the fibers going to the posterior parts. There is no reason, in other words, why the centripetal fibers of the recurrent ophthalmic and other fibers of the fifth pair should not have their analogue in a set of centrifugal fibers which are distributed to the optic-nerve disc and the neighboring retina, and that an inflammation might be limited to the peripheric ends of their fibers, while other parts through which the nerve fibers passed remained unaffected.

Now, as to the nature of the intra-cranial irritation. This might occur from many different causes, and through any agency, be it from swelling, softening, exostoses, exudations, or distension of the ventricles and lymph spaces of the brain by fluid. That it would occur by preference from tumors, which Leber and Jackson have already characterized as "foreign bodies," is most natural. That a "foreign body" within the head, which implicates the peripheric endings of the fifth pair, should set up an irritation which is conducted to the eye, is not any more strange than, indeed, not half so strange as, that a "foreign body" situated in one eye should produce an aggravated form of inflammation in the fellow-eye.

I would conclude, therefore, from the foregoing arguments:

1. That the vaso-motor theory, as advanced by Benedikt, is not sufficient to explain either the mode of transmission of the morbid irritation within the head, or the resulting neuritis optica.

2. That the irritation is conveyed, not by the isolated fibers of the sympathetic system, but through the agency of the trigeminus.

3. That choked disc or papillitis, in connection with brain disease, is not simply a vaso-motor disturbance—a vascular change—which leads to inflammation and stasis on account of the anatomical conditions of the parts affected, but that it is a true neuritis, the expression of an irritation of certain fibers of the fifth pair which not only regulate the blood supply in the vessels of the disc and its neighborhood, but which also maintain the healthy processes of waste and repair of the elements of the tissues themselves.

This being so, the same analogies and distinctions between "irritation" and "inflammation" can be made here as with sympathetic ophthalmia, so that here, as well as there, the irritation may exist as such for an indefinite time, or may so reduce the vitality and resisting power of the tissue of the disc and surrounding parts as to develop gradually, or explode suddenly, into an actual inflammation—that is, into a neuritis.

The immediate and exciting cause of this neuritis might then be either an external one, such as exposure to cold or heat, over-exertion, either mental or physical, or, indeed, too much exposure to light, the effects of which, under the weakened condition of the organ, might lead to a papillitis. Or the exciting cause might be an internal one, such as some irritation from the condition of the blood and circulating fluids, either chemical or mechanical, either local or general, which, insufficient in itself to produce any bad effect upon a normal disc, might yet be just sufficient to produce a condition of inflammation in a part that was weakened and irritable.

As will be seen, the foregoing arguments and conclusions are the extension of an opinion briefly formulated by me in an earlier paper.*

There are many points, physiological and pathological, contained in these remarks upon which I should like to dilate, and many other points which should have been introduced which are deserving of mention, but want of time compels me to postpone these for a future consideration.

ON CORTICAL SENSORY DISCHARGING LESIONS (SENSORY EPILEPSY).

By ALLAN McLANE HAMILTON, M. D.

MANY medical men are familiar with cases of epilepsy in which the sensory element preponderates; whether as an aura preceding a motor discharge, or occurring as a part of a paroxysm in which there is little or no succeeding motorial disturbance, but simply a discharge consisting of a preliminary alteration of special sensibility, and an immediate subsequent stage of unconsciousness.

Hammond † has referred to such a form of disease, which he has called "thalamic epilepsy," holding that the sensory disturbance is due to a lesion in the thalamus opticus; but in this I do not wholly concur, believing that the origin of the disease is in the cortex cerebri. There are, undoubtedly, many forms of epilepsy of an indefinite type; those which are classified under the head of *petit mal*, or as irregular or masked epilepsy; and in all of these the absence of hyperkinesis is the feature of the paroxysm. In the form of disease I am about to discuss, the patient is generally able to remember, and subsequently detail, the stage of primary mental disturbance, which is, as a rule, characterized by hallucinations, usually of a simple character, and not indicative of any complex psychical process.

In the majority of these cases there has been the simplest form of subjective consciousness of sensory impressions, most of the attacks consisting of the primary stages suggested by Jackson,‡ such as a sudden stench in the nostrils, or colored vision; but in two or three instances there was much more than this, and the phenomena were quite remarkable. In some cases which are samples of what Jackson has alluded to as hemispasm, the occurrence of a transient contraction of the fingers of one hand lent additional interest to the history, especially in regard to localization. In one case the patient's sensory condition was not the dreamy state referred to by Jackson, but there was always an hallucination of taste, the patient declaring that he had tasted copper or some other nauseous substance; and in other cases I have carefully examined there were equally striking proofs of the primary involvement of the cortical centers. The occasional occurrence of hallucinations as a part of the epileptic attack has been mentioned by various authors. Brierre de Boismont, Esquirol, Delasiauve, Maisonneuve, Billod, Sommers, Bergmann, Guislain, Tigges, as well as many other writers, have furnished cases which began with sensory auræ or hallucinations, but none of them, so far as I know, have made a distinct classification of sensory and motorial epilepsy. Some of these observers, among them Esquirol, were disposed to look upon the phenomena as evidences of complicating insanity, for, of three hundred epileptics reported by the latter who presented the history of hallucinations, the majority were insane, and such was the peculiarity of many of the ninety cases recently collected by Sommers, in which autopsical appearances are presented. Delasiauve,* in a somewhat extended consideration of the prodromal symptoms of epilepsy, recognized many of the auræ which interest us in the study of vague sensory attacks. He speaks of hallucinations—"*des visions bizarres*"; of the perception of fœtid odors; and says that in a few cases the prodromal symptoms are always uniform and have the same character. Maisonneuve† reports a case in which for five minutes before the epileptic paroxysm the patient saw a toothed wheel which rapidly revolved, and in the center of which was a hideous grinning face which subsequently changed to that of a friend of the patient's. In a case reported by Peyroux‡ the individual was suddenly startled by a chariot, driven by a little man in a red bonnet, which was about to run over him.

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* "Remarks on the Etiology of Choked Disc in Brain Disease." "Am. Jour. of the Med. Sci.," Oct., 1875.

† "Arch. of Med.," iv, 1, Aug., 1880, p. 1.

‡ "On the Anatomical, Physiological, and Pathological Investigation of Epilepsies," "West Riding Reports," vol. iii, p. 315; also, "On Epilepsies, and on After-effects of Epileptic Discharges," *ibid.*, vi, p. 266; "On Right- or Left-handed Spasms," etc. "Brain," iii, 2, p. 192.

Delasiauve reports a case in which a bad taste was perceived for some minutes before the paroxysm, and Maisonneuve has detailed examples of nasal auræ. In seventy-five cases collected by this author, there were sensory prodromal symptoms in sixty-four, and in nine cases there were hallucinations. Maisonneuve also reports specialized sensory auræ of vision and audition, and in one case the attacks were invariably preceded by twinkling lights, and sounds like pistol shots.

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* "Traité de l'Épilepsie; Histoire, Traitement, Médecine Légale." Paris, 1854, pp. 41, *et seq.*

† "Thèse Inaug. sur l'Épilepsie," 1803.

‡ "Observ. Méd.," p. 85.

Gowers* devotes considerable attention to the study of sensory auræ in ordinary epileptic attacks, and under the head of special-sense auræ describes shadowy mental conditions, some of which are of great interest. In one hundred and nineteen cases of epilepsy he ascertained that there were sensory auræ, and two thirds of these (eighty-four) were visual, one fifth (twenty-six) auditory, nine olfactory or nasal, and one gustatory. In fourteen of Gowers's cases there was what he calls a highly specialized visual sensation, and visual idea. In several of these cases the patient saw ugly faces, animals, an old woman in a brown dress, beautiful places, large rooms, etc., and in two cases the recognition of familiar places entered into the vision. In others there were auditory sensations, more or less elaborate. One girl heard the words "C-o-n with a con," and immediately lost consciousness.

But little mention is made of the disease where the paroxysms consist solely of sensory phenomena, the disturbance of motility being absent. Connolly speaks, however, of a case in which phantoms and goblins figured in the hallucinations of a young woman who subsequently became unconscious, but was not convulsed. Delasiauve † alludes to a form of epilepsy of momentary duration which may be mistaken for ecstasy, but which is probably, after all, only a variety of sensory epilepsy.

I have myself seen a number of cases in which the attacks consisted of a vivid sensory stage and a secondary unconsciousness, but no convulsion whatever. A few months ago I was consulted by a medical gentleman in regard to a patient who had for years presented a curious train of nervous symptoms, which afterward assumed a form leading me to think she might have sensory epilepsy. She would, in the presence of the gentleman who consulted me, who was a personal friend of the patient, and a medical man, stop short in the midst of an animated conversation, look fixedly ahead, appearing momentarily lost, remaining abstracted for a short period, possibly a minute, and on recovering herself go on, finishing the sentence she had commenced before the seizure. At this time she constantly had hallucinations of a visual character, when she saw animals, birds, figures of men and women who approached her, as well as a variety of other objects. A common hallucination, which had been repeated quite frequently, consisted in visions in which green leaves and white rabbits, and other objects familiar to her in childhood, figured extensively. Upon one occasion, while sitting in the drawing room, opposite a door which communicated with the hall, she suddenly called her companion's attention to the hand of a man which she saw clasping the baluster rail. The hand was seemingly disconnected from the arm. She was somewhat agitated, and it was nearly half a minute before the vision was dismissed. Sometimes she would call attention to the hallucinations before the attack, but more often she became transfixed, apparently lost, and then recovering, she described her visions minutely. She has apparently been able to foresee the attacks and ward them off by a strong voluntary effort. So far as can be learned, there is no hysterical element in the case, but her seizures are more frequent at the time of menstruation. In a private note it is stated that "the family history of the patient is very good, and she has always seemed remarkably healthy and robust, and has shown more than usual intellectual ability. She has appeared to persons generally to be of a contented, happy disposition. . . . At night, when she closed her eyes, she suffered from these hallucinations, especially after a day of fatigue. Her pupils are usully dilated, but her color undergoes no change during the seizure."

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* "Epilepsy and other Chronic Convulsive Diseases." London, 1881, p. 61.

† *Op. cit.*, p. 266.

An instance more marked came under observation a year or so ago. A young man, twenty-three years old, during the evening, while talking to some friends, suddenly paused. His face became deadly pale, and he breathed quite rapidly and forcibly for a few moments, and apparently fainted. There was no convulsive twitching whatever, and in a few moments he recovered completely. His friends left his apartment shortly afterward, and he went to bed. He called upon me the following morning, and stated that without any previous warning he felt strangely, and suddenly heard voices calling to him, as well as a sound repeated at quick intervals, which he likened to the stroke of the cathedral bell of his mantel clock, or the sound of a distant fire-alarm bell. He immediately became dizzy, a sense of impending suffocation overcame him, and he did not realize the loss of consciousness until he opened his eyes to find his friends bending over him. A month later he had an attack of the same kind, which happened on rising, when he again heard the voices, and the barking of a dog this time.

In this case there was a syphilitic history. No external signs of organic cerebral disease were visible, and no alterations at the fundus oculi. The last attack was followed by headache, which lasted through the following day, and he passed his urine very frequently. He was put upon specific treatment, with bromides, and has had but one or two attacks since the first, which did not differ materially.

I have not, so far, met with cases in which the individual was influenced by his hallucinations to express them by special motor acts before the attack, except in an unimportant way.

Upon two occasions I have had the good fortune to be present at the beginning of a sensory attack. In one instance the patient complained afterward that he smelt a horrible stench. I noticed that immediately before losing consciousness he carried his hand up to his nose, and immediately afterward became oblivious to everything about him. A similar action was performed by a patient who forcibly placed both hands over his eyes, as it afterward transpired, to keep out a bright light that blinded him. In two of Sommers's cases where there were visual auræ and hallucinations, the patients cried for help, and stretched out their arms before losing consciousness. In Hammond's cases the hallucinations were quite complex, the patients expressing their feelings in a decided way.

Brierre de Boismont * and Tardieu allude to those epileptics who act upon the suggestion of their hallucinations as follows: "*Quelquefois les figures fantastiques addressant la parole à l'épileptique, elles lui disent des injures ou lui commandent de faire quelque chose.*" De Boismont also refers to the fact that many of his patients were dazzled by a great red light, which shone as a star, before the attack. In the cases I have known, though the color seen was usually red, it was generally in combination with blue. In the lighter attacks blue visions seemed to be the more common, while in severe paroxysms red was the color seen most frequently.

In the light of all that has been done in the localization of cerebral disease, it is but proper that we should discover, if possible, the part played by the cortical sensory centers in the genesis of such epilepsies. So far, little has been brought forward to connect lesions of the sensory centers with special symptoms. Sommers,† whom I have before alluded to, in a most exhaustive consideration of epilepsy with regard to its localization in the horn of Ammon, presents ninety cases, and is disposed to connect those in which sensory auræ are prominent with a lesion of this part of the brain. Putnam,‡ however, disputes this view of the case, because of the bilateral nature of the lesions when found; though it appears from an inspection of Sommers's cases that in many of them the lesion was unilateral so far as the horn of Ammon was concerned. In our pathological discussion of sensory epilepsy the distinction should be made between lesions of the thalamus opticus and those of the cortical sensory zones, for in the one instance the sensory disturbance may be called the essential, while in the other there may be said to be an affection of special subjective consciousness.

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* "Des Hallucinations," etc., p. 700.

† "Arch. f. Psych. u. Nervenkr.," x, 1, 3, p. 63.

‡ "Supplement to von Ziemssen's Cyclopædia," art. "Epilepsy."

If an impression upon an organ of sense is sufficiently intense to impress the infra-cortical central sensory apparatus (thalamus opticus), it does not follow that there need be any implicated alteration of function in the cortical sensory regions. A lesion of the posterior part of the thalamus opticus, for example, may result in blindness—a *mechanical* blindness, if such an expression can be used, though there are exceptional cases reported by Brown-Séquard where even this is not the case—but it will not produce *word*-blindness, a purely psychical defect. There must be some altered cortical function to account for the unmistakable mental operations which permit the individual to recognize the altered sense-states and enter into the involuntary formulation of hallucinations which are afterward remembered.

I therefore do not believe that disease *alone* of the thalamus opticus plays any part in the origination of hallucinations.

According to Fournie,* an hallucination is the involuntary reproduction of a real or imaginary impression already perceived, but with sufficient energy to recall the object which really appears to be impressed upon our senses. Of course, the vividness and complexity of the hallucination vary, and a very shadowy impression indicates a low grade of intellectual activity, while a complex condition of elaborated impressions has a much greater significance, as Jackson has pointed out.

Kahlbaum,† Krafft-Ebing,‡ Wundt,* and others have recently considered the psychological physiology of hallucinations. Kahlbaum believes that the origin of certain hallucinations is through primary irritation of the perception centers; of others, an irritation passing centrifugally over the latter from discharging ideational centers. Wundt's theory in regard to the origin of hallucinations is the following: "1. There are hallucinations in which the psychical irritation precedes the physiological, which immediately arise from common recollections, and can only be measured by the intensity of the ensuing physiological irritation. 2. There are hallucinations in which the physiological irritation precedes the psychical; the physiological irritation may be either central or peripheral." To the latter class I believe the hallucinations of sensory epilepsy very often belong.

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* "Physiologie des Systèmes Nerveux, Cérébro-spinal," etc., p. 815.

† "Allg. Ztschr. f. Psych.," Bd. xxviii.

‡ "Lehrbuch der Psychiatrie," Bd. i, p. 92.

* "Grundzüge der physiolog. Psychologie," p. 652.

The infra-cortical excitation may be so frequently repeated and so powerfully expended upon the cortical sensory center as to excite the latter, and render its elements so unstable that a supra-cerebral excitation, from an ideational center, for instance, is only needed to light up a condition of altered function that shall serve as the basis of an hallucination.

The question of inhibition is one of some interest in this connection. Kandinsky * says that hallucinations arise directly from lowered function of the cortex of the fore-brain, and when volitional energy is exerted they may be dispelled. This theory is illustrated by the first case I have related, the patient being able to banish her hallucinations just as another individual is to sometimes abort or ward off an impending epileptic paroxysm by some voluntary effort resulting in inhibition. Kandinsky also holds that the occurrence of lesions is due to a suspended inhibition of the sensory centers, arising from a defect in the exertion of psychic activity in the fore-brain, an opinion which is to some extent shared by Meynert. The condition of excitement of the sensory centers must be favorable to the development of an irritative discharge.

In those cases beginning by hallucinations and sensory phenomena, and in which an extension of the seizure is manifested by motor phenomena, the implication of motor centers has been abundantly proved, I think, to be the primary result of exhaustion of the sensory zones, and the motor stage of the epileptic attack probably bears the same relation to the sensory stage as paresis as a symptom does to pain. Affection of the sense of smell in the course of organic disease, especially in epilepsy, will, I think, in the future serve often as the basis of sensory localization, because of the simplicity of the symptom and the accompanying psychical process. Gowers has referred in his lectures to the frequency of nasal auræ in cases seen by him, and these were sometimes isolated, or were noticed with other sensory precursors of the attack.

In seven of Gowers's cases there were olfactory auræ, and nearly always the sensation was that of an unpleasant smell. One patient described it as a smell like cork, another as a smell like sulphur,

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* "Zur Lehre von den Hallucinationen." "Arch. f. Psych. und Nervenkr.," xi, 3, p. 453, April, 1881.

while others compared the odor to that of rotten eggs, burnt flesh, and tonquin beans. In two cases the auræ were associated with one of a visual character. In this connection the case of M. M. is of interest in substantiating the theories of Ferrier * and Munk.† Ferrier found that irritation of the subiculum cornu Ammonis in a monkey produced movements indicative of subjective olfactory sensation; and Munk has found that injury of the gyrus hippocampus is followed by anosmia and other disturbances of the sense of smell upon the same side as the injury; while in hemi-anæsthesia of the cerebral region the loss of smell is upon the opposite side.

M. M. was a stout Irishwoman about forty years of age. She had suffered from a light form of epilepsy, dating from the tenth year, and resulting, as she stated, from a fall, when she struck her head and was unconscious thereafter for some hours. No scar was visible, however. No satisfactory history could be obtained regarding her early life and the first paroxysms. In the beginning these were rather frequent, and she had as many as four or five a month. They afterward diminished in number and severity, and for many years she had but three or four in the course of the year. They were not very severe, and she was enabled to pursue her work as a house-maid, but did not keep her places for any great length of time. She rarely bit her tongue, but usually frothed at the mouth, and became livid and convulsed for a short time. There was no history of one-sided spasms. As I have stated, I could gain no accurate account of the previous attacks, except that she nearly always had an aura of a peculiar character, which was a prominent feature of the seizure and very pronounced. She suddenly perceived a disagreeable odor, sometimes of smoke, sometimes of a fœtid character, and quite uncomplicated by other sensory warnings; and afterward became unconscious, and remained so for two or three minutes. She was invariably able to describe her sensations when she recovered, which she always did when I asked her, comparing her warning to the smell of burning rags, to the smell from a match, and, as she expressed it, "it sometimes rose up in her head and choked her." She was under my observation for one or two years, but eventually developed phthisis, and died, her attacks occurring from time to time until her death.

Besides well-marked tuberculous lesions in the lungs, there was little of interest so far as the visceral examination was concerned. The brain was removed, and its peculiarities were carefully observed. A great quantity of fluid was found, especially at the dependent portions of the membranes and in the ventricles, while the dura was thickened and pearly in spots. There was a condition that might be likened to a low grade of hæmorrhagic pachymeningitis, and at the base of the brain old plastic changes were found, there being adhesions, especially in the region of the middle lobes, but more particularly on the right side and near the median line. The brain as a whole was small, and weighed forty-one ounces and a fraction. The sulci were deep and gaping, and the convolutions were distinct. There was no atrophy of the fore-brain convolutions, and no other pathological appearance was presented except that found in the menin-

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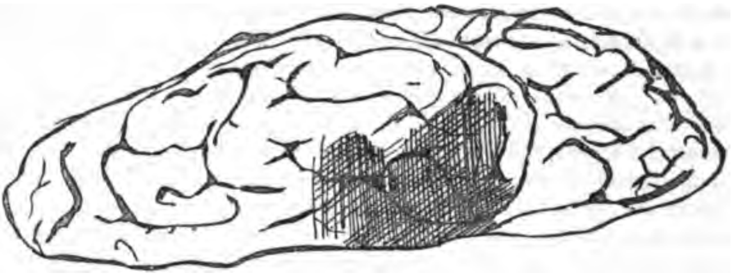
* "Lectures upon Localization," p. 123.

† "Verhandl. d. physiol. Gesellsch. zu Berlin," 1878–'80.

ges, but at the lower part of the temporo-sphenoidal lobe of the right side an appearance was found of an exceedingly interesting nature. At this point a decided shrinkage of tissue was discovered, with depression and adhesion of the pia, the induration involving the uncinate gyrus and parts of the adjacent convolutions, as represented in the drawing. No induration or softening of the great motor tracts was observed, and the optic thalamus and parts adjacent were uninvolved, as was the cord. An attempted microscopic examination, undertaken some months subsequently, was unsatisfactory, because of the bad condition of the brain, the preserving fluid having been improperly made. The olfactory nerves were not involved. The third frontal convolution was examined, but no disease was found there. Consequently it is to be inferred that no lesion of the external root of the olfactory nerve existed.



Lower face of right hemisphere.

In this connection it may be well to refer to the observations of Ogle, Serres, and others, who report cases of cerebral disease in which affections of smell of different degrees existed in association with the disease of the speech center, and were usually in patients who were aphasic.

The character of the injury in the case of M. M. suggests that the primary injury may have been that alluded to by Ogle,[*] Hilton,[†] Knight,[‡] and others, the blow being received on the vertex, and the injury of the base following as the result of transmitted violence.

Amidon[#] reports a case of tumor of the pons complicated with lesions which were situated in the anterior perforated space and at other parts of the base, which is of decided interest in this connection. The tumor in the pons involved the third and fifth nerves, so that there were obstinate trigeminal neuralgia, ptosis, and internal strabismus. The patient had a well-expressed epilepsy in addition, with a marked sensory aura. She had several paroxysms preceded by a nasal aura, and she perceived a peculiar smell, but where other children had pharyngeal diphtheria. One was isolated. The latter recovered after temporary paralysis of the palate, and paralysis of two months' duration of the right arm and leg. 4. The fourth variety consists of an inflammation of the tissues surrounding the umbilical vessels within the abdominal cavity, and often accompanies puerperal disease. It is usually limited to the vicinity of the navel, but may extend along the course of the umbilical vein to the capsule of Glisson. Early in the disease the umbilical vessels are not affected, but later they participate in the inflammation, and necrosis may occur through pressure from the shrinking exudation. The peritonæum is at first only locally injected; later a yellowish infiltration separates it from the posterior wall of the umbilical fossa.

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[*] "Trans. of the Med.-Chir. Soc. of London," vol. iii, p. 268, cases 7 and 9.

[†] "Rest and Pain," p. 25.

[‡] "Boston Med. and Surg. Jour.," vol. xcvi, 1877, p. 583.

[#] "Arch. of Med.," Dec., 1879.

Omphalitis may occur primarily or secondarily to other diseases. It is attributed, sometimes, to anomalies in the closure of the navel, to rough handling, to uncleanliness, to impure air, or to puerperal infection. Peritonitis and thrombosis of the umbilical vessels, with subsequent phlebitis and arteritis, are frequent complications. Umbilical hæmorrhage, icterus, and pyæmia may also occur.

The case under consideration corresponds more closely with the second or severe form, described by Hennig, than with either of the other varieties. The cause in this case is not definitely known. The disease is said to occur during epidemics of puerperal fever, but there had been no case of puerperal disease in the institution for some time previous to the birth of the child, or immediately subsequent to it. The lying-in ward was not crowded, and was well ventilated. Due attention was paid to cleanliness, and there was no traction or pressure on the cord, or irritation of any kind. If inflammation of the umbilical vessels existed, it may have been secondary. Or it may have been due to the low degree of vitality of the child, or to a greater liability to inflammation on account of an inherited scrofulous taint, as the disease is apt to occur in cachectic infants.

One of the chief points of interest in connection with the case is in regard to inflammation of the umbilical vessels. Umbilical phlebitis was first described by Meckel and Osiander. Rauchfuss and Buhl, according to Hennig, prepared the way to the modern theory of the constitutionally infectious nature of the disease, due to bacteria. Bouchut remarks that the disease is especially observed during epidemics of puerperal fever, and is, perhaps, only a manifestation of puerperal poisoning in the new-born. Hennig says it may be primary, and develop under the influence of puerperal infection or of an atmosphere containing poisonous germs. It may hours preceding death respiration was labored, with decided expiratory moan. Examination of the chest revealed dullness on percussion over the base of the left lung, with fine moist râles over both lungs. Catarrhal conjunctivitis occurred two days before death. The child died on the twelfth day after birth—eight days after the inflammation began at the navel.

Autopsy, forty-eight hours after death.—Body emaciated; rigor mortis had disappeared. Hypostasis of the back, head, neck, and sides of chest. Bluish discoloration over the left frontal eminence. Both upper eyelids swollen and ecchymotic. Umbilicus the seat of an ulceration. On opening the thoracic cavity and removing the lungs, the base of the left lung was found very dark—almost black, solid, and friable, which on section was found to be due to a large hæmorrhagic infarction involving the entire lower lobe. The superior lobe of the left lung was not so extensively affected. Small embolic infarcti were distributed more or less over the whole of the right lung. The surrounding lung-tissue was œdematous. On examining the heart, the right ventricle was found distended with dark coagula; the left ventricle contained dark fluid blood. On opening the abdominal cavity, the omentum, the peritoneal surface of portions of the small intestines, and the stomach were found deeply injected. Near the umbilicus the parietal peritonæum was intensely injected. The peritoneal cavity contained about two ounces of bloody serum. The umbilical vessels were the seat of thrombi. The umbilical arteries stood out prominently, had a cord-like appearance, and were unevenly dilated. The umbilical vein was enlarged, and the walls were thickened. The other organs appeared healthy.

Omphalitis was recognized by Ambroise Paré and Collet. The disease is of rare occurrence. Among seven thousand sick children, Hennig observed only twelve cases; of these, three were of mild form. It is said to occur even during fœtal life, by the movements of the child causing traction upon an unusually short cord, or one that is wound around the body of the fœtus. Hennig describes four varieties: 1. A mild form, in which the navel is prominent, the surrounding skin is reddened, the abdomen is distended, and, when the abdominal walls are thin, the vein can be felt as a cord extending from the liver to the umbilicus. 2. In the second or severe form, the navel is infiltrated and surrounded by a reddish-blue circle. Erysipelas frequently occurs and extends over the abdomen and the lower extremities. There is greater distension of the abdomen, even when peritonitis does not occur, than in the mild form. The urine is sometimes bloody or icteric. The stools are greenish or bloody. Movements of the inflamed navel are painful, and may cause convulsions or trismus. Recovery is rare in the severe cases, but may occur after the disease has continued two or three weeks. 3. The third variety is the croupous or diphtheritic. Bednar found the navel inflamed and covered with a false membrane. The peritonæum behind it was usually involved in the inflammation, and frequently the contiguous coil of intestine. Hennig observed three cases of isolated diphtheria of the navel, two occurring in families upon defective involution of the vessels. Rauchfuss states that a periphlebitic serous infiltration extending from the navel will hinder the involution of the umbilical vein. He relates a number of cases to demonstrate that general septic poisoning is the cause of non-involution of the vein.

Thrombosis sometimes has an intra-uterine origin. Wrany found, in the investigation of one hundred and twenty infants, coagula twenty-three times in the arteries and three times in the veins. Hennig says it is rarely congenital. Virchow found it as a continuation of an inflammatory thrombosis of the placenta, and Scanzoni observed a congenital thrombosis of the umbilical vein with the coagula extending into the liver.

Inflammation of the umbilicus, and especially of the outer walls of the umbilical vessels, is an important factor in causing non-involution. Buhl laid stress on the relations of the disease to the connective tissue and its lymph spaces, and, while admitting that inflammation of the navel did not necessarily precede umbilical thrombosis, yet he considered the inflamed umbilicus "an open door" for the absorption of septic material by the gaping blood channels of the new-born, just as the open uterine sinuses can take up infectious matter when subinvolution occurs. This thrombosis might also be caused by defective nutrition of the vascular walls themselves, arising from a general septic poisoning, causing pyæmia or septicæmia. Whereas, on the one hand, thrombosis may occur from septic absorption, so, on the other, there may be general septic poisoning after involution of the vessels, when no thrombosis can occur. The infection may be limited by thrombosis *in situ* of the umbilical vein, just as the uterine lymphatic glands can sometimes limit the diffusion of poison in puerperal infection.

The principal danger in thrombosis of the umbilical vessels is the softening and breaking up of the coagulum, with the formation of distant emboli. As the umbilical vein is, of all the blood-vessels peculiar to fœtal life, the first to undergo involution, and is even at birth sometimes found considerably contracted, softened clots can rarely be admitted to the venous blood through the ductus venosus. Even an embolus in the liver is an exceptional occurrence. A coagulum at the entrance of the umbilical vein into the portal vein has been frequently observed, but is believed to be a local thrombosis and not an embolus. Thrombosis sometimes, though rarely, extends from the umbilical vein into branches of the portal vein.

In regard to the pathological anatomy of umbilical phlebitis, the vein frequently presents a hard, cord-like feeling, the walls being thickened and often unevenly dilated. The contents may consist of simple disintegrated coagula or of uniform laudable pus. Sometimes the pus column is separated by cheesy masses. Occasionally a pseudo-membrane is found lining the vein. The intima and middle coat finally dissolve into a mass of white blood-corpuscles.

In the lungs, Weber and Buhl found pyæmic infarcti, and sometimes gangrene. Accompanying this, or alone, there may be extensive pleurisy, with fœtid exudation. Weber frequently found catarrhal bronchitis.

The heart is usually quite small, corresponding to the emaciation of the child. Pericarditis has been observed in a number of cases. Hennig says the cardiac blood is scarcely ever coagulated [in our case it was], but is generally tarry or gelatinous.

The liver is sometimes, though rarely, affected. Bednar once found, in umbilical phlebitis, the hepatic vein inflamed, and nearly all its branches filled with pus, which, on section of the liver, flowed out in great quantities. Emboli in the hepatic branches of the portal vein have not been clearly demonstrated. When inflammation of the connective tissue around the umbilical vein extends to the capsule of Glisson, the latter becomes swollen and infiltrated. The inflammation may extend to the hepatic parenchyma, and by compression of the bile ducts produce mechanical icterus, which assumes, however, the malignant form.

In the alimentary canal Weber found capillary hæmorrhage of the mucous membrane in almost every case. Hennig also found it, and thought it might be explained by obstruction of the superior mesenteric artery or the portal vein.

Softening of the stomach is not rare. Buhl once found the mucous membrane strewn with ulcers of the size of a lentil, from the jejunum to the cæcum. The solitary and Peyer's glands, as well as the mesenteric glands, are often swollen.

In the kidneys, pyæmic infarcti and abscesses are sometimes found, also thrombi in the renal veins.

The symptoms of phlebitis are a cyanotic or icteric hue of the surface. Pemphigus vesicles and hæmorrhagic abscesses are frequent. Gangrene, especially over the sacrum and of the navel, may occur. The purulent contents of the vein can sometimes be pressed out through the umbilical fossa. The umbilicus becomes prominent and indurated. The cord may have fallen or be still adherent. The inflamed vein can sometimes be felt through the abdominal wall.

Bednar observed fever in four cases of phlebitis. Erysipelas is frequent; diarrhœa seldom occurs. Hennig found trismus twice. Scheller found, in five sixths of his cases of tetanus neonatorum, the umbilical vessels inflamed and filled with pus. Many of the above-mentioned symptoms belong to omphalitis, but the latter can be readily recognized by the redness and swelling around the navel, while umbilical phlebitis is said to be difficult of recognition.

Next to peritonitis, meningitis is the most frequent complication. Hennig saw peritonitis occurring in fifteen out of forty cases. It may be circumscribed or general. The peritoneal fold surrounding the umbilical vein is often the starting-point of the inflammation. Widerhofer says phlebitis is often only recognized after the appearance of purulent infection. It occurs between the first and twenty-eighth days, most frequently on the seventh. Bednar and Widerhofer consider the disease absolutely fatal. Hennig saw one patient recover in spite of icterus and trismus. The fatal termination may be either from general septic poisoning, from peritonitis, from embolic infarction and metastatic abscesses, or from thrombosis in important vascular territories.

In a hospital for children in Vienna, Bednar saw, within two years, among fourteen thousand four hundred and seventy-seven children, thirty-six die of umbilical phlebitis. Buhl says phlebitis and arteritis are frequently combined; Bednar and Hennig make the same statement. Inflammation of the umbilical arteries may be confined to the seat of the coagulum, the remaining portion of the vessel being contracted or even closed. The coats of the vessels become swollen and gradually disintegrate, and finally perforation occurs. The adventitia is the seat of the principal changes, which readily extend to the surrounding tissue. Arteritis may occur after the umbilicus is almost or entirely healed, and the latter may afterward begin to protrude, inflame, and suppurate. Bednar once saw pus oozing out of the navel during respiratory movements of the abdomen. Pus can sometimes be pressed out by making pressure upward from the bladder. Hennig speaks of pointing out to his students the triangle formed by the umbilical arteries passing up from the sides of the bladder, the skin inclosed in the triangle being somewhat œdematous and of a white or yellowish color. At times there is retention of urine, with painful micturition and sensitiveness in the region of the bladder. Icterus and peritonitis may occur, but belong more particularly to phlebitis.

The contrast between arteritis and phlebitis is striking. Arteritis is rarely accompanied by fever, icterus, or pyæmia, and is almost always cured. Phlebitis has all the above-mentioned complications, and is almost always fatal. Arteritis is rarely a cause of general infection, but pyæmia may occur by purulent matter from the arteries being taken up from the umbilical fossa by the vein. This occurs more easily when the navel has been closed or healed over. Or infectious material could pass, in the opposite direction, into the pelvic blood-vessels, and from these into the general circulation. The neighboring lymph vessels can also take up molecular detritus and carry it into the circulation. Thrombosis of the ductus Botalli has been observed in arteritis, but oftener in phlebitis. Hennig asserts that no case is known in which the obstruction could be referred to an embolus; the coagulum was always formed *in situ*.

In the case which occurred in this institution the non-involution of the umbilical vessels, with the formation of thrombi, can readily be accounted for by the lowered vitality of the child—an organic weakness which most authorities admit as sufficient cause for such conditions.

As the child was weak and feeble at birth, and respiration deficient, it may have been that there was insufficient aspiration of blood from the umbilical vein, thus preventing the normal collapse of the blood channels, and that thrombosis was the result. Had the ductus Botalli been examined, a thrombus would probably have been found in that location. Omphalitis occurred a few days after birth, and subsequently ample means was afforded for the absorption of purulent matter, as well as an extension of inflammation to the walls of the umbilical vessels and surrounding tissue, with a subsequent phlebitis and arteritis. The external appearances of the umbilical vessels, as observed at the autopsy, gave evidence of inflammation, but we have no positive proof that either phlebitis or arteritis existed, as, unfortunately, the vessels were not opened. As the clot softened and became disintegrated in the umbilical vein, emboli may have been carried through the ductus venosus to the inferior vena cava, thence to the right side of the heart, and from there to the pulmonary artery, where obstruction occurred in some of the smaller branches, and hæmorrhagic infarction was the result.

Jürgensen describes two kinds of emboli as producing the condition called embolic pneumonia. He divides them into infectious and non-infectious emboli; the one acts mechanically as a plug, the other has specific qualities. Non-infectious emboli produce hæmorrhagic infarction; infectious emboli, or those carrying septic material, produce embolic or metastatic abscesses. In the vast majority of cases, says Jürgensen, hæmorrhage into the lung tissue is caused by a non-infectious embolus in the artery leading to that part of the lung. In our case there were no metastatic abscesses or pus found in the lungs; therefore we conclude that the infarction was produced by a non-infectious embolus. This is an argument against phlebitis, and in favor of thrombosis. The peritonitis which existed as a complication of the case may be accounted for by contiguity with the posterior wall of the inflamed umbilicus.

REPORT OF THE COMMITTEE ON RESTORATIVES, OF THE THERAPEUTICAL SOCIETY OF NEW YORK, ON THE USE OF THE CALCIUM SULPHIDE AS AN ANTISUPPURATIVE.*

By ANDREW H. SMITH, M.D.,
CHAIRMAN OF THE COMMITTEE.

The committee have had before them for some time the use of the calcium sulphide as an antisuppurative, and especially in pustular skin affections, and have collected fifty-one cases, which form the basis of this Report. Before proceeding to these cases, however, attention is asked to a very brief historical sketch, which is furnished by Dr. J. C. Peters.

The sulphide of calcium is the hepar sulphur calcarea of the older German authorities. From Dierbach's "Materia Medica," published at Heidelberg and Leipsic in 1841, we learn that hepar sulphur was known to Geber and the Arabians, and Albert von Bollstadt and Basil Valentine, in the middle of the fifteenth century, busied themselves especially with it, but it was a long time before it was admitted into the pharmacopœias. It was placed in the Pharmacopœia Helvetica in 1771, and since then has had a place among officinal preparations in the Prussian, Saxon, Danish, and French pharmacopœias. It was supposed to be a liquefacient remedy which rendered the plastic portions of the blood more fluid, and was generally used against croup (membranous), in chronic inflammations of the bowels, chronic peritonitis, chronic dropsy of the brain, various forms of inflammations of the eyes, pulmonary tubercles, St. Vitus's dance, metallic poisoning, tedious forms of gout and rheumatism, and diabetes mellitus; and, externally, against itch and other skin eruptions. It was simply regarded as a soluble form of sulphur, and before Hahnemann's time was in common use to cause perspiration, to increase expectoration, and to act upon the liver and the venous, portal, and hæmorrhoidal systems generally. It and sulphur were also used against the after-diseases following exanthematic fevers and many other diseases in which a crisis through the skin was supposed to be required, and many disorders attributed to check of perspiration, and especially in consumption, asthma, and other chest affections. It was supposed to act somewhat like mercury, for which it was often substituted in the treatment of syphilis. Hahnemann recommended it in his treatise on syphilis in 1788, long before he began to promulgate homœopathy. Attention was called to it anew by Ringer some ten years ago, who insisted especially upon its value in preventing, or favorably modifying, suppuration. Since then it has been used to a considerable extent, but there is still doubt in the minds of many of the profession as to its usefulness.

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* Read before the Medical Society of the County of New York, April 24 1882

The cases are as follows:

Dr. W. T. Alexander.—Nineteen (fifteen of acne, two of furuncles, one of anthrax, one of chancroidal bubo).

Dr. George Bayles, of Orange, N. J.—Two (one of chancroidal bubo, one of suppurative ophthalmia).

Dr. H. T. Hanks.—Twelve (four of otorrhœa, three of acute tonsillitis, one of endometritis, one of axillary abscess, three of mammary abscess.

Dr. D. M. Cammann.—Four (two of acne, one of furuncles, and one of suppurating sinus in stump).

Dr. V. P. Gibney.—Two (one of multiple abscess, one of recurring periarthritis).

Dr. Austin Flint.—Three (furuncles).

Dr. Robert Amory, of Brookline, Mass.—Three (one of acne, two of furuncles).

Dr. T. H. Burch.—One (acne).

Dr. A. H. Smith.—Five (two of phlegmon of neck, one of hordeolum, one of tumor of axillary glands, one of furuncles).

Dr. W. T. Alexander reports nineteen cases in which he has employed the calcium sulphide. In seven of these cases the patients did not remain long enough under observation to show any decided effect, although some slight improvement was observed. In twelve cases the treatment continued from five days to several weeks, and in nearly every case improvement occurred, sometimes of a marked character and apparently fairly attributable to the medicine.

The following are some of his cases:

Case I.—Peter W., 23 years of age. Acne punctata et pustulosa of face and neck. June 11, 1879, ordered pil. calcii sulphid., sing. gr. ¼; one four times a day. June 14th, decided improvement. July 5th, still steadily improving.

Case II.—T. D., Irish, 40 years of age. February 6, 1879. Acne rosacea of face, nose, cheeks, and chin, of a dusky-red color, and the seat of numerous papules and pustules. Ordered pil. calcii sulphid., sing. gr. ¼; four daily. February 8th, some of the papules have already disappeared. Continued treatment. February 15th, papules all gone. But little change in the color of the parts.

Case III.—Josephine A., 22 years of age, Belgium. May 17, 1879. Acne papulosa et pustulosa of face. Ordered pil. calcii sulphid., sing. gr. ¼; four daily. May 22d, improved; ordered five pills a day. May 29th, still improving. To continue treatment. June 15th, improvement has ceased. Face worse than at last visit. June 28th, has taken the pills regularly, and is very much better. Has but few nodules on face now. Ordered six pills a day. July 5th, still improving. July 13th, still improving, but slowly. Ordered seven pills a day. August 5th, almost well. She has now only two small papules on the face. She states voluntarily that she suffered from dysmenorrhœa before taking the pills, but that the pain ceased after she had been taking them for some time.

Case IV.—Edward M., United States, 89 years of age. June 14, 1879. Acne rosacea. Ordered pil. calcii sulphid., sing. gr. ¼; four daily. June 29th, very great improvement. Nose paler in color, and the number of papules diminished. Ordered five pills a day. June 24th, improvement continues. To continue the treatment. July 1st, nose growing paler. But two papules on face. He says the pills disturb his stomach somewhat. August 14th, still doing well. To take six pills daily. August 19th, still some redness of nose, but the patient thinks himself cured.

Case V.—Patrick W., Irish, 24 years of age, blacksmith. May 4, 1880. Acne vulgaris of back (papules, pustules, comedones, sebaceous tumors). Ordered tinct. saponis virid. comp. as a lotion, and pil. calcii sulphid., sing. gr. ¼; four daily. Two sebaceous cysts incised and drawn out with forceps. May 8th, much improved. The lotion has caused considerable irritation of the skin. Ordered to stop it, and continue the pills. May 11th, doing well. May 21st, great improvement. No new or old pustules on back, and but few papules and but little redness of the skin. Takes five pills a day, and has not used the lotion for some time. May 29th, somewhat worse. Several large, red, inflamed tubercles between shoulders and over scapulæ. Back very sore. Ordered six pills daily.

Case VI.—Emma H., United States, 14 years of age. January 11, 1881. Acne punctata of face, comedones, amenorrhœa. Nose and whole face thickly covered with nodules, pustules, and cicatrices. Anæmic girl. Ordered an iron tonic. January 15th, no better. January 22d, face no better, but appetite improved. Ordered a sulphur lotion, and pil. aloës et ferri, to relieve constipation. A few pustules incised. January 29th, no improvement. Ordered pil. calcii sulphid., sing. gr. ¼, four times daily, and to continue the rest of the treatment. February 3d, decided improvement. Formation of new pustules seems to have been arrested, and the old ones undergoing slow involution. General health is much better. Ordered to take five pills daily. February 8th, not much, if any, change since last visit. Many comedones removed to-day. February 15th, has been faithfully pursuing the treatment. Her face is not so well to-day, being redder in color, and showing many new pustules. On the right cheek a cluster of papules has disappeared, leaving red depressed cicatrices behind. Comedones are much more easily expressed than before. Ordered pil. calcii sulphid., six daily; extr. ergotæ fl., glycerin, āā f ℥j, as a lotion. February 26th, decided improvement; but few new pustules to be seen, comedones much fewer in number. March 3d, still improving. Redness of face not much diminished; but few new pustules have formed. March 10th, great improvement as compared with condition at time of last visit. Constipated. Ordered a cathartic. March 22d, improved. Has menstruated since last visit, for the first time in months. March 31st, still improving; no pustules on face now. Ordered syrup. ferri iod.

Case VII.—Patrick D., Irish, 41 years of age, stone-cutter. June 7, 1879. Anthrax on top of right shoulder, over outer third of clavicle, extending back to rim of scapula, as large as a man's fist, with numerous small sieve-like openings. Swelling very red, tense, exquisitely painful, and discharging a small amount of pus. Moderate febrile movement. The patient had a similar trouble on back of neck ten years ago. Ordered pil. calcii sulphid., sing. gr. ½; four daily. June 10th, wonderful improvement. Redness much less, and pus has entirely ceased to flow. Parts less swollen and sensitive. The patient is confident that he began to improve after he had taken the first pill. To continue treatment, and apply poultices.

Cases by Dr. George Bayles, of Orange, New Jersey:

Case I.—Bubo consecutive to a non-indurated chancre, which, I believe, almost invariably suppurates. A young man who had been treated for a venereal sore at the base of the glans penis came to me with an abscess in the groin, which was rapidly enlarging. Without adopting any surgical method, I gave the patient a triturate preparation of sulphide of calcium (one part of the sulphide with nine parts of sugar of milk); dose, a half grain of sulphide three times a day. In a few hours suppuration was arrested and absorption commenced, with the result of entire disappearance of the bubo in about a fortnight. No other treatment whatever was used.

Case II.—Strumous purulent ophthalmia. A girl of eight years, badly nourished and much neglected in every way, came under my notice in hospital practice with purulent inflammation of the eyes. After a course of iron, cod-liver oil, and good diet, the general condition improved. Strict cleanliness of the affected parts benefited, but all hygienic measures failed of themselves to arrest the suppurative tendency. I prescribed a triturate of sulphide of calcium with milk sugar (one part to ten of sugar), and gave one-eighth-grain doses of the sulphide every six hours. The case had lasted, previous to the use of the sulphide, sixteen months without essential improvement. After the sulphide was begun a perfect arrest of suppurative action occurred within ten days, without other medical treatment.

Cases by Dr. H. T. Hanks:

Case I.—A. B., with otorrhœa of over twenty years' standing, was very greatly improved while taking quarter-grain pills of sulphide of calcium every two hours. After using the remedy for three weeks, the discharge ceased entirely for two months.

Case II.—C. D., a child of six years, otherwise healthy, had had an otorrhœa for two months. The discharge was greatly reduced by the use of quarter-grain pills of sulphide of calcium every four hours.

Case III.—C. R., a child about five years of age, had otorrhœa for two months. Discharge finally ceased after using one-grain pills of sulphide of calcium every four hours for about one week.

Case IV.—C. B., a child of six years, has had frequent attacks of purulent discharge from the ear for three years or more. Discharge greatly diminished after using one-grain pills of sulphide of calcium every four hours for two weeks. Discharge returned after three months.

Result in otorrhœa (four cases) good. No other remedy was used in any case except daily washing out the ears by injections of warm water.

CASE V.—Miss L. has had quinsy quite frequently. On first appearance of the premonitory symptoms I gave one-grain pills of sulphide of calcium every two hours for two days. The threatened suppuration of the tonsil was aborted.

CASE VI.—Mrs. A., who has had quinsy often, was attacked with tonsillitis. The one-grain pills of sulphide of calcium every two hours did not change the course of the disease in the least.

CASE VII.—Miss C. had threatened suppurative tonsillitis; was greatly improved while using one-grain pills of sulphide of calcium every two hours. Tonsil did not suppurate.

CASE VIII.—Mrs. L., suffering from suppurative endometritis of some standing, was given sulphide of calcium in one-grain doses every four hours. It was continued for two weeks. Result, absolutely no benefit.

CASE IX.—H. had often suffered from axillary abscess. Took one-grain pills of sulphide of calcium every four hours, before and after suppuration took place, with quite firm conviction that the disease was nearly aborted by the use of the medicine. In a second attack, some months later, it was completely aborted.

CASE X.—Mrs. S. had threatened mammary abscess. Took one-grain pills of sulphide of calcium every three hours, with no decrease of the inflammation, which finally resulted in suppuration. Notwithstanding the continued use of the drug, suppuration was profuse and persistent.

CASE XI.—Mrs. B. had mammary abscess developed before beginning medical treatment. Took one-grain pills of sulphide of calcium every three hours for one week with no appreciable effect.

CASE XII.—Mrs. R., with a similar history, took the drug with no better result.

Cases by Dr. D. M. Cammann :

CASE I.—Miss I. C., fifteen. Acne and comedones of the face. Took one tenth of a grain of calcium sulphide in pill three times daily after meals. After four or five days had nausea and partial anorexia, which continued until the seventh day, when the drug was stopped. The acne was slightly improved. Has since, at various times, taken other drugs and used sulphur ointment with about the same result.

CASE II.—D. C. Furunculus. Was given one tenth of a grain of calcium sulphide in pill three times daily after meals. The day after giving the medicine the boil opened, but the amount of suppuration which followed was much less than might have been expected. For the first week of taking the medicine the appetite was markedly improved, but then the digestion became disturbed and the drug was stopped. Other boils appeared at intervals for three months, in the neighborhood of the first. During this time tonics and the compound syrup of the hypophosphites (a tablespoonful every four hours) were used at intervals.

CASE III.—A. B. Acne of the face. He was given one seventh of a grain of calcium sulphide in solution after meals for about ten days. The acne almost disappeared. There was no disturbance of digestion.

Case IV.—M. S. A strumous boy about seventeen years of age. He had had a Syme's amputation performed. The stump did not heal well, a sinus remaining which led in the direction of bone, and from which a considerable amount of pus was discharged. After dressing for a while with balsam of Peru, the discharge remaining about the same, a pill of calcium sulphide, one tenth of a grain, was given three times daily. A marked diminution of the discharge followed. The drug was stopped on account of disordered digestion.

The conclusions that I have arrived at from observing a number of cases (about fifteen) are: That calcium sulphide, in doses of one tenth of a grain three times daily, diminishes suppuration; and, secondly, that at first it promotes and then interferes with digestion.

Cases by Dr. V. P. Gibney:

Case I.—Bone disease, with multiple abscesses about knee; duration of pus sacs, four years; temporary improvement. A female, aged nine years, with disease of the distal extremity of the femur, of several years' standing, had, at the time treatment was begun, numerous ulcers and sinuses leading to pus-cavities, all about the knee joint, most of which had existed for at least four years. The discharge was very profuse when calcium sulphide, in eighth-of-a grain doses, four times a day, was ordered, March 22, 1879. On April 14th the mother reported that the discharge had decreased perceptibly, but, inasmuch as the redness, heat, and pain were more marked, it was thought that the decrease in discharge was due rather to imperfect drainage. The calcium sulphide was continued, however, and on May 6, 1879, there was unmistakable evidence of improvement, in that the discharge was less profuse and the ulcers were healing. June 7th. There was comparatively little discharge, and the medicine was continued; but from this time forth there was no further improvement, and finally the drug was discontinued. Its efficacy seemed to have been exhausted.

Case II.—Recurring phlegmonous periarthritis; first attack recovering in twenty days under syrup of iodide of iron; second attack recovering in twelve days under calcium sulphide. Female, aged three years, came under treatment August 28, 1881, with phlegmonous infiltration in left ilio-costal region and in left gluteal region, of three days' standing. The thigh was acutely flexed, and perinephritis was first suggested on examination, but, on finding circumscribed infiltration about crest of ilium and on thigh, the diagnosis was easily made. Rest and syrup of iodide of iron, gtt. viij t. i. d., ordered; by the 24th of September all symptoms had disappeared, and the patient was discharged cured. February 7, 1882, returned with marked fullness on outer side of thigh, and small furuncles about lower half of body, all of a few days' standing, and coming on, as did the other attack, without known provocation. An evaporating lotion and rest ordered, but on February 11th there did not seem to be much improvement, when the calcium sulphide, gr. $\frac{1}{10}$, every two hours, was ordered, and the lotion was discontinued. February 18th, very much better, the infiltration being scarcely perceptible. February 23d, discharged cured. No signs whatever about hip.

Dr. Austin Flint writes: "I have prescribed the sulphide of calcium in three cases of furuncles, which are all that I have seen within the last two years. In each of these three cases the non-occurrence of furunculi after commencing the use of the remedy seemed to show its utility."

Dr. Robert Amory, of Brookline, Mass., a corresponding member of the society, reports three cases:

Case I.—This case, which presented a crop of severe furuncular and pustular suppurations, occurred in his own person. One tenth of a grain of the calcium sulphide was taken every two hours during the day for several days, notwithstanding eructations of sulphuretted hydrogen and dizziness of the head; but no benefit whatever was experienced. The sulphide was then abandoned, and iodide of iron and cinchona bark were substituted, under which the formation of new pustules ceased. The treatment was then discontinued, but in a few days the tendency reappeared and the calcium sulphide was again tried, with no better result than in the first instance.

Case II.—Pustular acne in a young, unmarried woman. She took quarter-grain doses of the sulphide three or four times a day for two weeks, without any benefit, and, on account of disturbance of digestion and general prostration, it was discontinued. She improved under ferruginous tonics and liberal diet.

Case III.—This case was one of multiple furuncles. The tendency to the formation of fresh pustules was immediately arrested by the use of the calcium sulphide.

Dr. T. Hamilton Burch reports one case:

Indurated acne, with a large number of comedones and with successive crops of boils on the neck. The calcium sulphide was taken in doses of two grains, t. i. d., for a month, without any benefit. The small doses, $\frac{1}{10}$ gr., 2da qu. h., had previously been tried for three months without benefit.

Dr. A. H. Smith reports the following:

Case I.—Inflammation of connective tissue of neck. Mrs. B., aged thirty-five, seen in May, 1879. Diffused swelling on left side of the neck, extending from the jaw to the clavicle, and from the side of the trachea to the posterior border of the sterno-mastoid muscle. Tumor, hard and very painful, had already existed for two or three days. No fluctuation perceptible. Iodide-of-lead ointment was ordered to be kept constantly applied, and one eighth of a grain of calcium sulphide was given every two hours. Under this treatment the suppuration which appeared to be imminent was averted, and complete resolution of the inflammation took place in about five days.

Case II.—L. R., aged sixteen months. Phlegmon of neck after pneumonia. Patient, a very vigorous child, while recovering from a severe pneumonia, was attacked with adenitis of the left side of the neck, and not only the glands but the surrounding connective tissue were greatly swollen. At two points the skin became red, and there was everything to indicate approaching abscess. One twentieth of a grain of calcium sulphide was given every two hours, and the syrup of the iodide of iron, which the child had been taking before, was continued. Poulticing was attempted, but not efficiently carried out. There was a prompt diminution in the swelling, and within a week it had disappeared.

Case III.—Hordeolum. D. H. T., six and a half years of age, complained during the afternoon of soreness on the edge of the eyelid. The following morning a stye was well under way, presenting an inflamed nodule of the size of a small

French pea. A pill of calcium sulphide containing one tenth of a grain was given every two hours. The progress of the stye was at once arrested, and by evening of the following day scarce a trace of the nodule remained.

Case IV.—Chronic inflammation of the breast, with consecutive enlargement of axillary glands. Mrs. C., 56, had had for five months a slowly increasing tumor in the left breast, less hard and less defined than scirrhus, and not presenting the characteristics of malignant disease. An exploring needle deeply introduced showed a cavity containing a sero-purulent fluid. A gland in the axilla was enlarged to the size of a walnut. The cavity of the abscess was laid open, and its thickened walls were excised, but, as the gland was supposed to be enlarged only from sympathetic irritation, it was not removed. The wound healed kindly, but there remained a slight tumefaction of the breast. The gland diminished in size at first, but after a few weeks it increased again, and in two months there was a tumor about three inches in diameter, extending forward under the pectoral muscle, and in which two enlarged glands could be distinguished imbedded in an ill-defined mass of inflammatory exudation. There was constant pain in the tumor, which was becoming more severe, and there was marked tenderness on pressure. Iodide-of-lead ointment had been used freely for some time without benefit, when, on the 20th of March, sulphide of calcium in one-tenth-grain doses every two hours was ordered, the ointment being continued. Four days later there was marked diminution of the pain and tenderness, and the swelling around the glands was less. In three weeks the pain had entirely ceased, and but little tenderness remained. The exudation about the glands was nearly gone, and the tumefaction of the breast was less. At the present time the swelling about the glands has entirely disappeared, and the glands themselves, greatly reduced in size, lie loose and free in the connective tissue.

In this case I have not a doubt that the formation of a chronic abscess in the axilla, similar to the one in the breast, was averted by the calcium sulphide.

Case V.—Furuncles. Mr. M., 28, came to me with a large boil over cricoid cartilage. A poultice was ordered, together with calcium sulph., $\frac{1}{10}$ gr., 2da qu. h. The following day the boil was opened, and healing took place more rapidly, it appeared to me, than usual. Still, while taking the sulphide another large boil formed on the back of the neck and followed a very tedious course, and before it had healed a third one began near the second, and attained the diameter of an inch. The dose of the sulphide was doubled, and the swelling disappeared without suppuration. Tincture of iodine was applied to both the later boils.

Dr. G. H. Swazey writes: "I have used calcium sulphide in acne with very satisfactory results, especially in acne simplex. I seldom use more than one twentieth of a grain three times a day. The preparation is one made by rubbing up one grain of calcium sulphide with one hundred grains of milk sugar. This must be kept in a well-corked bottle, and away from the light. There is usually improvement by the end of a week. The duration of the treatment depends entirely upon the severity of the case."

Dr. E. C. Seguin writes: "In reply to your circular respecting the use of calcium sulphide, I would say that I have no exactly reported observations to transmit, but I have used the remedy in doses of one half and one grain from three to six times a day for the aggravated bromic acne in several of my epileptic patients, and I believe that the effects have been good—fully as good as, in two cases certainly better than, those of arsenic."

Judging from this limited number of cases, it would seem that we are warranted in concluding that in many cases of suppurative affections, ranging from the small pustules of acne to extensive suppurating surfaces, an appreciable, and often a very marked, benefit is derived from the use of the calcium sulphide, suppuration which would otherwise take place being averted, or the quantity and duration of an existing discharge being lessened.

At the same time its action is not uniform; and in many apparently favorable cases it will fail entirely.

The drug is somewhat prone to irritate the stomach, and this circumstance affords an indication for small doses frequently repeated instead of larger ones at longer intervals. One tenth of a grain every two hours in acute cases will generally secure the full therapeutical action of the drug, but larger doses may sometimes be required, and some patients will bear well a grain three or four times a day.

Even in small doses the sulphide will occasionally produce headache, and the patient is usually more or less annoyed by eructation of sulphuretted hydrogen.

RESEARCHES IN THE MINUTE ANATOMY OF THE EPITHELIA OF THE KIDNEY.*

By HENRY B. MILLARD, A. M., M. D.

R. Heidenhain † was the first to call attention to the presence of a peculiar rod-like or bacillated structure existing in the uriniferous tubules. He found this structure in convoluted tubules, in the ascending portions of the looped tubules, and in the intercalated tubules of the kidneys of mammals.

According to his view, the rodlets (Stäbchen) are plainly visible in the outer portions of the epithelia—that is, in those portions lying next the connective tissue, and he sometimes saw in torn epithelia the rods isolated. The same observer * also first demonstrated with accuracy that the secretion of the salts is performed only in the tubules, in accordance with the views maintained by Bowman. Charcot † deduces from the experiments of Heidenhain with indigo-blue the conclusion that the secretion or elimination of this coloring matter takes place only in those portions of the tubuli uriniferi which are covered by the epithelia having the rods (épithélium à bâtonnets). Whether the secretion of the specific principles of the urine takes place in precisely the same fashion as the elimination of coloring matters, he regards as impossible of demonstration experimentally.

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* Read before the New York Medico-Chirurgical Society, May 9, 1882.

† "Mikrosk. Beiträge zur Anat. und Physiologie der Nieren." Max Schultze's "Arch. f. mikr. Anat.," 10 Bd., 1874.

In a recent monograph by Charcot, *Leçons sur les Conditions Pathogéniques de l'Albuminurie*, Paris, 1881, he regards the *tubuli contorti* and the loops of Henle, particularly the ascending branches of the loops, as the real glandular part of the kidney. "They are," he says, "lined by an epithelium, thick, granulated, cloudy—in a word, glandular. They are enveloped in all parts by a dense capillary network, bathed, like themselves, in a lymphatic fluid." "These parts seem, then, in some respects, designed for the selection and concentration of the specific principles of the urine, urea and uric acid; it is in these parts, no doubt, that is formed the hippuric acid, which does not pre-exist in the blood."

Heidenhain, however, did not associate the rods with the process of secretion, for he observed a similar structure also in the smaller ducts of the parotid and submaxillary glands, the same formation in the latter structure being already known to Henle and Pflüger. In the acini of the glandula submaxillaris, and in the other acinous glands, he could not discern them.

E. Klein ‡ asserts that he has observed that the rods or fibrils of Heidenhain, when looked at from the surface, are connected into a network, so that they are more probably septa of a honey-combed network seen in profile. What the intimate nature of these formations is, neither of the above-named authors attempts to explain. My own researches, I hope, will prove their nature, though as to their significance I have only suggestions to make. Since the reticular structure of all protoplasmic formations, including, therefore, epithelium, was demonstrated by C. Heitzmann, * the question has been, what the reticulum present in the protoplasm is. Unquestionably the two main properties of living matter are motion and production of its own kind. Both these properties are attributes of the reticulum within the protoplasm. As long as a protoplasmic body is alive and endowed with the property of amœboid motion and locomotion, the reticulum in it is never in a state of perfect rest. We constantly see changes in the configuration of the reticulum. We see that in a portion of the protoplasmic body the reticulum becomes very narrow, while in an opposite portion it is simultaneously widened, especially so when a prolongation of the body, a pseudopodium, is pushed out. In such a flat offshoot, or false leg, the reticulum, may be stretched to such a degree that the projection looks homogeneous, as if destitute of any structure.

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* "Versuche über den Vorgang der Harnabsonderung." Pflüger's "Archiv," 9 Bd., 1874, p. 1.

† "Charcot on Bright's Disease," translated by Millard, New York, 1878, p. 23.

‡ "Atlas of Histology," London, 1880.

* "Untersuchungen über das Protoplasma." "Sitzungsberichte d. kaiserl. Akad. d. Wissensch. in Wien," 1873.

The writer above quoted claims that the narrowing of the reticulum is the state of contraction which is an active property belonging to it. The stretching, on the contrary, represents the state of extension which is merely passive, due to the pressure of the liquid pushed out from the contracted portion into that at comparative rest, this contracted portion being immediately after extended.

The foregoing is tenable only if we admit the presence of an investing layer around the protoplasmic body which prevents the liquid filling the meshes from escaping outward. The flat investing layer is claimed to be identical in its nature with the mass composing the reticulum proper. It is maintained, also, that the reticulum at any time, and almost instantaneously, may be transformed into a flat layer, as is the case in the formation of an investing layer around a vacuole. *Vice versa*, the flat layer almost instantaneously may fall back into the reticular structure at the moment of disappearance of the vacuole. This continuous change of shape and place of the reticulum is a positive proof of its being living matter. S. Stricker,* among the most recent observers, describes the reticular structure and its changes as follows:

"The interior of the cell-bodies undergoes manifold visible variations. One of the most remarkable instances is furnished in the saliva corpuscles. The assumption that a so-called molecular motion takes place in the saliva corpuscles is erroneous. The granules seen with insufficient amplifications are transverse sections of trabeculæ. The saliva corpuscle is traversed by a sharply marked trabecular structure, which, so long as the corpuscle is fresh, executes lively wavy motions. The waving gradually ceases on addition of solutions of salts in certain concentration, and the reticular structure disappears. The waving is now replaced by very slowly formed changes in the interior mass."

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* "Mittheilung über Zellen und Grundsubstanzen." "Med. Jahrbücher," 1880.

A second proof of the reticulum being the living matter proper rests upon the fact that, both in normal and in morbid processes, the new formation of corpuscular elements starts from the points of intersection in the reticulum. This so-called endogenous new formation of living matter is especially plain in the inflammatory process invading epithelial formations. Here, it is important to note, the reticulum at first becomes coarse, next it coalesces into lumps, which, being at first homogeneous, in turn assume a reticular structure themselves, and now represent so-called inflammatory or pus corpuscles. These corpuscles at first remain in connection with the neighboring reticulum by means of delicate filaments, which are portion and part of the reticulum. Later, when the pus corpuscles which have originated in the interior of an epithelium become extruded from its interior, the newly formed corpuscles represent pus corpuscles.

In conducting my researches, I have studied the kidneys of the rabbit, pig, dog, and man, all of them being preserved and hardened in a solution of chromic acid. I have, therefore, no observations to report upon the form changes of the epithelia, but have studied the changes in the interior structure of the epithelia in the inflamed human kidney as they appear in chronic croupous, in chronic interstitial nephritis, in waxy degeneration of the kidney, in fatty degeneration, and in chronic interstitial nephritis with acute recurrence. These investigations enable me to maintain that the reticular structure of the epithelium of the kidney *is really a formation of living matter.*

Upon closely examining the epithelia of the tubuli uriniferi in the kidneys of the above-named animals, we readily perceive, with comparatively low powers of the microscope (400 or 500 is sufficient), the presence of rod-like formations in the epithelia of the *tubuli contorti*, in the irregular tubules, in the ascending branch of the looped tubules, and in the intercalated tubules, entirely in accordance with Heidenhain's assertions, although he does not include the kidneys of the pig.

The drawings of the rodlets, as given by Heidenhain in Max Schultze's "Archiv," and copied by Klein and other writers, give an exaggerated idea of the real appearance of the rods. Even under a high power they are never so large as in the drawings, and seldom present the straight, regular, and symmetrical appearance there represented. The accompanying drawing

(Fig. 1) more nearly represents their average appearance under a power of 1,200.

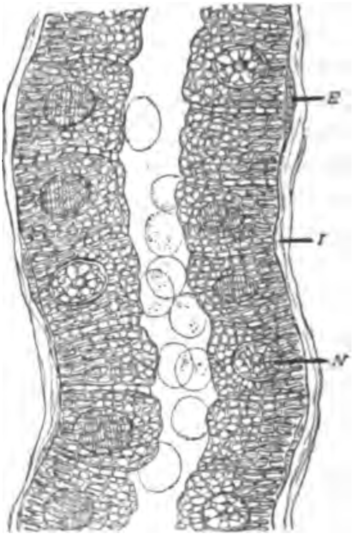

FIG. 1.—CONVOLUTED TUBULE FROM THE KIDNEY OF A RABBIT. (Longitudinal section—magnified 1,200 diameters.)
N, nucleated columnar epithelium, showing the rods; *E*, endothelia; *I*, interstitial connective tissue, producing the basement layer.

I have found them in the healthy kidney as follows:

In man, in the ascending tubule, power 1,200.

In the rabbit, power 500 to 600, in convoluted, in ascending, and in irregular tubules. Also (never before mentioned) in a portion of the descending tubules.

In the pig, in the convoluted and irregular tubules; and in the same tubules, and narrow tubules, in which the rods are very faintly shown, of the pup.

The pale, flat epithelia of the looped tubule proper do not, as a rule, exhibit the rods. The columnar epithelia of the collecting tubules, on the contrary, which are distinctly imbricated, especially in the kidney of the dog, exhibit the rods more or less plainly. The columnar epithelium of the rabbit does, however, show them. High powers (1,000 to 1,200) of the microscope corroborated the views of Klein—namely, that the rods are connected with a reticulum by means of delicate filaments inosculating both with the wall of the nucleus around which the rods are located, and also with the delicate reticulum in the inner portion of the epithelia, next to the caliber, where the rods are usually absent. It is striking how the thickness of the rods differs in the different epithelia of the same animal's kidney. Sometimes they are very thin, beaded poles, with quite distinctly marked interstices between them. In this case the connecting filaments, running almost at right angles from rod to rod, are easily discernible. At other times the rods are rather bulky formations, having but extremely narrow interstices between them. In this instance the connecting filaments, as a matter of course, are very short, and not easily seen. In a third instance the outermost portion of the epithelium is a compact or homogeneous mass, in which no rods can be observed at all.

Another striking feature is the great variety of appearances exhibited by the cement-substance. Sometimes this is plainly marked at regular intervals between the epithelia. Then the transverse connecting filaments, the formerly so-called thorns, are plainly visible. At other times hardly any trace of cement-substance is seen, but the reticular structure is present in a nearly uniform distribution throughout the epithelial layer. S. Stricker (*loc. cit.*) was the first who observed these same varieties in the appearance of the cement-substance in the epithelial layer of the cornea; also, that the nucleus varies greatly in the degree of distinctness in which it comes to observation. Where the rods are slender, the nucleus, as a rule, is well defined; where, on the contrary, they are bulky, the nucleus is, on an average, not very plainly marked. The sharpest definition of the nucleus is furnished by the flat epithelia of the looped tubules in which the rods, as before mentioned, are absent.

In inflamed kidneys of man I have repeatedly found the rods as follows:

1. In chronic interstitial nephritis:
   a. In the convoluted tubules.
   b. In the straight tubules.
2. In acute croupous nephritis:
   a. In ascending tubules.
3. In chronic croupous nephritis, in the straight tubules.
4. In chronic croupous nephritis with waxy degeneration, cross-sections of ascending tubules show the rods rather enlarged. Also in straight tubules in the pyramid of the same kidney.
5. In chronic croupous nephritis with acute recurrence, in cross-sections of the convoluted tubules.
6. In fatty degeneration of the kidney, in cross-sections of the convoluted tubules. The rods here showed fat globules. The connective tissue was thickened.

In these specimens the rods of the epithelia throughout the tubules are clumsy and bulky, the whole reticulum being enlarged, rendering the epithelium, with low powers of the microscope, coarsely granular. In many instances the rods are not discernible, as, in their place, a coarsely granular mass is present, pervading the whole epithelial body; or else the innermost portion of the epithelium looks coarsely granular, the outermost portion, on the contrary, being homogeneous and shining. I have repeatedly seen in acute interstitial nephritis even the looped tubules, which in this situation were considerably increased in bulk, provided with a coarsely granular reticulum—nay, even with an indistinct rod-like structure. All these features become still more prominent by staining the specimens with the chloride of gold after they have been soaked and washed for several days in distilled water. This reagent, in a half-per-cent. solution, brought in contact with the specimens for forty minutes, renders sections from the normal kidney of a brown violet hue, slightly increasing the distinctness of the reticular structure of the epithelia. In the inflamed kidneys of man, the epithelia of a great many of the ascending, irregular, and convoluted tubules, upon being stained with the chloride of gold, as above described, became dark violet. With higher powers of the microscope we can ascertain that it is the coarse reticulum, the bulky rods, and the homogeneous masses sprung from coalescence, as it were, of the rods, which exhibit the deepest gold stain.

As it is the tubuli uriniferi which have the rod-like structure, which in Heidenhain's experiments with indigo sulphate are the only ones which are colored by it, so in the inflamed kidney it is only these tubules that become colored by the gold. It seems reasonable to suppose, from the effect of these reagents, that the epithelia with rods, perhaps by virtue of their having more living matter and a more bulky reticulum, are of most importance in secreting or forming the extractive matter of the urine.

Numerous attempts to produce the stain with the gold in the healthy kidney of the dog, pup, rabbit, and pig, were ineffectual in rendering the rods plainer than in the unstained condition.

In the inflamed kidneys, in which the violet coloration was produced, no doubt the reticulum of the epithelia, owing to the inflammatory process, was considerably increased in bulk. The most marked violet stain was exhibited by a number of the convoluted tubes and by irregular and ascending tubules. We know that living matter is considerably increased in amount in the inflammatory process, and are justified, consequently, in maintaining that the reticulum and the rod-like formations within the epithelium, being part of the reticulum, are formations of living matter.

As to the significance of the rods, it may be inferred from the statements I have made that they are in close relation with the process of secretion. Obviously, the stream of liquid running from the neighboring blood-vessels through the epithelia toward the liquids contained in the caliber, and *vice versa*, will be facilitated

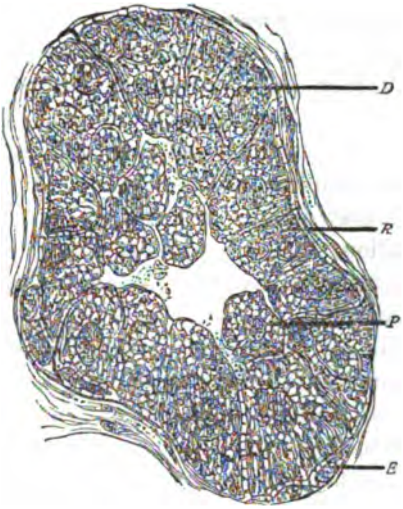

Fig. 2.—Convoluted Tubule from a Human Kidney Affected with Acute Catarrhal (Interstitial) Nephritis. (Oblique section—magnified 1,200 diameters.)

P, inflammatory corpuscle, sprung from the division of an epithelium; *D*, cluster of inflammatory corpuscles, sprung in the same manner; *R*, rods of cuboidal epithelia, still recognizable; *E*, endothelia, increased in size and number.

by an elongated arrangement of the reticulum—i. e., the rods. In a state of comparative rest the rods lie close to each other—nay, are coalesced into homogeneous masses. In this condition the cement-substance between the epithelia is best marked. In full activity of the epithelium, on the contrary, the rods will be very distinct, will stand farther apart, and the cement-substance between the epithelia will, in consequence, become indistinct.

THE ENDOTHELIA OF THE URINARY TUBULES.

While investigating the peculiarities in the structure of epithelia of tubuli uriniferi in their normal condition, I often observed the presence of flat, spindle-shaped bodies between the basis of the epithelia and the adjacent so-called structureless membrane of the tubule. These spindle-shaped bodies doubtless correspond to those flat, nucleated formations which cover the inner surface of the structureless layer in nearly all epithelial—i. e., glandular—formations. By most observers they are regarded as endothelia belonging to the connective tissue subjacent to the epithelial layers. V. Czerny was the first one to bring them to view in other tissues, which he did by staining the specimens with the nitrate of silver; and C. Ludwig,* also by the silver stain, first indicated their presence in the urinary tubules. He does not fully describe them, but alludes to them as follows. Speaking of the basement membrane of the tubuli uriniferi, he says: "In general, the basement membrane appears to be homogeneous, and can not be further divided; but occasionally a nucleus can be brought into view in its substance by carmine; and in some instances, and for short distances, the same appearances occur in the tortuous canals, when treated with nitrate of silver, as are presented by the blood and lymph capillaries under the same condition." "The basement membrane is as clear as glass, elastic." "The shape of the nucleus is usually the same in all instances, being spherical, sharply defined, and with numerous granules scattered through its substance."

Such an endothelial layer, present in all varieties of the urinary tubules, is best visible in the front view of the structureless membrane, where the epithelium is stripped off. Here the endothelia are comparatively large, irregularly polyhedral bodies, with distinct central nuclei. The nucleus has a plainly marked shell, containing in its interior a few small nucleoli, the nuclei being mostly of oblong shape. In the body of the endothelium a delicate reticulum is seen with very minute nodulations. Each body is separated from all its neighbors by a delicate light rim of cement-substance, which is traversed at right angles by extremely minute filaments or thorns. In side view, obviously, these bodies will exhibit a spindle-shape, the broadest portion of the spindle corresponding to the central nucleus.

If the views of recent observers are correct—namely, that the structureless layer, synonymous with the hyaline or basement layer, is an aggregation of endothelia infiltrated with elastic substance—this view may also be applied to the structureless membrane of the urinary tubules. In normal kidneys I failed to discover nuclei in the structureless layer proper, which would indicate their construction of former endothelia. In inflamed kidneys, on the contrary, no doubt was left as to the fact that the structureless layer is composed by a number of closely attached, in part nucleated, endothelia.

I have found the endothelia repeatedly in the inflamed kidney in chronic croupous and in chronic interstitial nephritis, in acute interstitial and in acute croupous nephritis, and in fatty and waxy degeneration of the kidney. I have found them most frequently in the ascending, descending, and convoluted tubules. I am not aware that any observer has heretofore recognized their existence as having a pathological significance.

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* "Hand-book of Histology," by S. Stricker, London, 1874.

In the inflamed kidney the endothelial layer beneath the epithelial is always more marked than in the normal kidney. In chronic catarrhal (interstitial or desquamative) nephritis, all the tubules that have lost their epithelial investment invariably show an investment of endothelia.

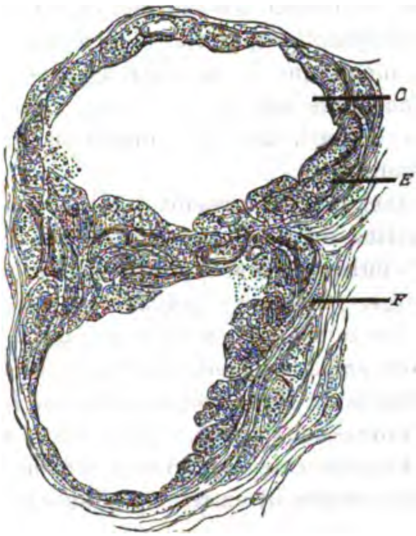

FIG. 8.—CONVOLUTED TUBULE FROM A HUMAN KIDNEY AFFECTED WITH CHRONIC CATARRHAL (DESQUAMATIVE) NEPHRITIS. (Oblique section—magnified 1,200 diameters.)
C, caliber, widened by loss of the epithelia ; *E*, endothelia, increased in size and number ; *F*, interstitial fibrous connective tissue, with augmented plastids.

This, in the transverse section of the tubule, is characterized by the presence of flat, irregularly spindle-shaped bodies, which are always more coarsely granular than in the physiological condition. Their nuclei are also more coarsely granular, sometimes homogeneous. The flat shape, the large size in the frontal diameter, and the construction of the nuclei serve for an accurate contradistinction to epithelia. I have failed in obtaining specimens indicative of a new formation of epithelia after the loss of the original epithelial investment.

It may be admissible to assume that the enlarged endothelial layer serves (at least to some extent) as a substitute for the lost epithelia. In tubules whose epithelia, as in chronic catarrhal nephritis, are transformed into inflammatory or medullary corpuscles, the new formation of such structures also starts from the endothelia. The final result in this instance is known to be the destruction of the tubule and its replacement by newly formed connective tissue—a condition which is known by pathologists as cirrhosis of the kidney.

[Since writing the rough outlines of this article, I have recognized for the first time well-marked endothelia in the urine in a case of advanced chronic croupous nephritis with fatty degeneration. I found a cluster of three or four of these surrounded by free fat granules.]

Still more plainly marked are the endothelia in croupous (parenchymatous) nephritis. In fact, the appearances seen in urinary tubules where casts have just formed could not be explained unless by the presence of endothelia.

We do not yet know what the mass composing a cast really is. This much, however, is certain, that casts are proteinates and formations of an albuminous or fibrinous exudate sprung from the blood-vessels. This exudate, before it reaches the central caliber of the tubule, necessarily must saturate the intervening epithelia, whose structure is completely destroyed by this process. It is not my purpose to dwell upon the origin of casts, but, from what I have seen, I can not concur with Oedmansson * in the opinion that every cast should be regarded as a product of secretion furnished by the epithelium. I am sure that the epithelia perish in the formation of the cast. Neither can I agree with Charcot † in the opinion that some (certain granular) casts are made up of broken-down epithelial cells, others (hyaline and some granular) of an albuminous substance, while epithelial casts are agglomerations of epithelial cells more or less altered.

Bartels ‡ insists that, in every case in which he has examined microscopically thin sections of diseased kidneys whose tubules were blocked by the dark granular casts, the tubules invariably exhibited an epithelial lining, reconciling this fact with his view by admitting that the theory of Key and Bayer, that the epithelium thus shed is rapidly reproduced, may be correct.

From my observations, it is obvious that the last three writers have regarded the endothelia, as I have described them, as epithelia.

Nevertheless, whenever we find a cast within a tubule, especially in transverse sections of the tubule, we almost invariably see a wreath of irregularly spindle-shaped, partly nucleated bodies, which I am

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* Bartels, von Ziemssen's "Cyclopædia," vol. xv, p. 84.

† Charcot, "Bright's Disease." Millard's translation, New York, 1878, pp. 29, *et seq.*; quoted by Tyson.

‡ Bartels, *op. cit.*, pp. 84–86; quoted by Tyson, on "Bright's Disease."

sure are nothing but the lining endothelia of the structureless membrane.

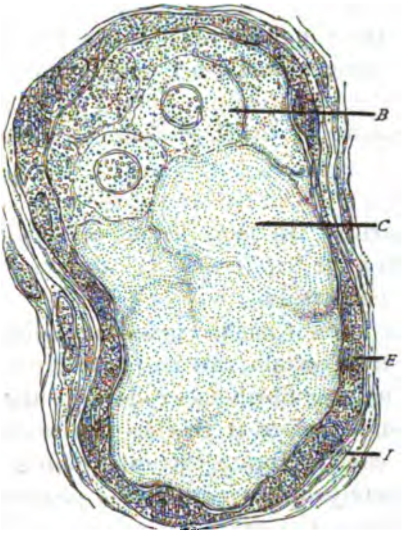

FIG. 4.—CONVOLUTED TUBULE FROM A HUMAN KIDNEY AFFECTED WITH ACUTE CROUPOUS NEPHRITIS. (Oblique section—magnified 1,200 diameters.)
C, hyaline cast; *B*, swollen and disintegrated epithelia participating in the formation of the cast; *E*, wreath of endothelia; *I*, interstitial connective tissue.

This wreath around the cast may be easily recognized by any good observer. Dr. Alfred Mayer,* of New York, gives illustrations of these wreaths, which evidently are drawn with the greatest accuracy; but he does not realize at all their character or significance, for he suggests that they are constructed either of remnants of the former epithelia, of which a large portion has been destroyed in the formation of the cast, or that they may be newly formed epithelia. In both these views he is mistaken. The epithelia are certainly gone, entering in a considerably swollen condition the mass of the cast; but what is behind the cast is not newly formed epithelia, but merely the endothelial investment of the structureless layer, considerably increased in size. Not infrequently we see widened urinary tubules, as a rule, of the convoluted variety, entirely destitute of epithelia; or we see such tubules containing a cast broader in its diameter than the caliber of the tubule would be if the epithelial layer were present. The latter feature is explicable by the fact that casts may be carried into tubules far distant from the place of their origin—into tubules, besides, which have been previously deprived of their epithelia. There is no cogent necessity whatever for the conclusion that casts may form in tubules after these have lost their epithelia. In neither of these instances shall we ever miss the endothelial investment, although this is often found in a mutilated or imperfectly developed condition.

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* "Untersuchungen über acute Nierenentzündung." "Sitzungsb. d. Akad. d. Wissensch. zu Wien," 1877.

The results of my researches may be summed up in the following statements:

1. The rods discovered by Heidenhain in some varieties of the tubuli uriniferi are part and parcel of a reticulum present within every epithelium.
2. The reticulum, including its elongated rod-like formations, is the living matter proper.
3. The relation of the rods to the rest of the reticulum of an epithelial body varies greatly, the variation probably being due to different stages or degrees of secretion.
4. The reticulum, including the rod-like formations, in the inflammatory process, both in catarrhal and croupous nephritis, gives rise to a new formation of living matter, which results in the new formation of medullary corpuscles or pus corpuscles.
5. The structureless membrane is lined by flat endothelia lying between it and the basis of the epithelia of the urinary tubules.
6. In nephritis the endothelia become considerably enlarged, and in catarrhal, as well as in croupous nephritis, they line the urinary tubules after the epithelia have been shed or lost; they surround the cast in croupous nephritis after the epithelia have perished in the formation of the cast.

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Editorials.

THE MEETING AT ST. PAUL.

Some interest seems to attach to the question of how the American Medical Association will treat those who present themselves from the State of New York at the St. Paul meeting and claim seats as members. There is a possibility that the claims of three different classes will have to be passed upon—those who are accredited by the Medical Society of the State of New York, those who represent local societies within the limits of the State, and those who may chance to attend as permanent members. We trust that all three of these classes will be well represented, for, notwithstanding the probability that at least the delegates from the State society will not be allowed to take their seats, the course on which we have entered in New York requires that the question should not be suffered to go by default.

We advise the delegates from our State society to present their credentials and quietly await the result. It would not be well, we think, that their voices should be raised in regard to the matter further than to answer whatever questions may be addressed to them officially. At all events, let there be no attempt on their part to tone down or gloss over the plain meaning of the new State code of ethics, which will probably be brought up as requiring repudiation in the shape of the abolition or suspension of the State society's title to representation. If the meeting should take any such action, the propriety of returning home at once will no doubt suggest itself to the delegates, for it would be in the highest degree indecorous to put such a strain upon our brethren in St. Paul as, with all their undoubted hospitality, would result from the simultaneous entertainment of the American Medical Association and those whom it had spurned from its presence.

A knottier question will arise, it seems to us, with regard to the two other classes of representatives from this State. The association may not feel like excluding these gentlemen on the mere score of their living in this recalcitrant State, but how can they themselves bear allegiance to the national code and to the State code at one and the same time? As individuals, or as representing different organizations, they may indeed adopt diverse lines of action, but no attitude which they, or any of them, may assume ought to have the slightest weight in leading to the conclusion, if any conclusion is to be reached, of the differences now existing between the American Medical Association and the Medical Society of the State of New York. The latter body, if we read the signs of the times aright, means to stick to its position, and there should therefore be no attempt at compromise.

Reviews and Literary Notes.

Rheumatism: its Nature, its Pathology, and its Successful Treatment. By T. J. MACLAGAN, M.D. London: Pickering & Co., 1881. Pp. xii-333.

THE author is the one who first suggested salicin in the treatment of rheumatism, although he produces a letter from a South African physician in which it is shown that the Hottentots many years ago used a willow tea in the treatment of rheumatism. Since 1876 the treatment of acute articular rheumatism has radically changed. It was in this year that the salicylic-acid treatment was introduced by the Germans. Kolbe had discovered the drug, and by accident it was found useful in acute rheumatism; it is now more largely used in its treatment than any other remedy. In very much the same way as Helmholtz worked out the ophthalmoscope, Maclagan came to his conclusions in regard to the probable usefulness of the salicyl compounds in rheumatism. He had used salicin nearly a year before Stricker used salicylic acid in the same disease in Germany. Maclagan had observed that acute articular rheumatism was very prevalent in certain countries, and he concluded that there must be found in those countries a specially efficacious remedy for it. After casting about some time he alighted on the salicyl compounds, and first introduced salicin to the profession in a paper in 1876. In 1881 he says that he feels more than ever gratified at the accumulation of evidence that the suggestions contained in his paper of 1876 were correct.

The most interesting part of the book is the effort to prove that rheumatism and malaria are allied affections. After discussing the varieties and symptoms, the duration and seat, of rheumatism, the author enters into a long discussion of its nature. He discusses the lactic-acid theory, and discards it. He then attempts to trace the analogy between rheumatism and malaria, and puts his arguments most forcibly, but not conclusively to the careful reader. There are certainly many points in which the two diseases resemble each other, but one argument against the analogy seems to be stronger than all the arguments in its favor: there is wanting in rheumatism the essential, absolutely essential, feature of malaria—*periodicity.* The absence of this one feature destroys the theory of the malarial origin. The author takes it for granted that the germ theory of the origin of disease is proved; and this, too, is fatal to his argument, for the germ theory is by no means proved. We must yet wait for a satisfactory explanation of the pathology of rheumatism.

If the disease were malarial in its origin, it would seem that quinine ought to control its manifestations more frequently and more decidedly than it does. To be sure, quinine does not cure all cases of malaria, but it does produce a beneficial effect on the very large proportion of them.

The general subject of rheumatism is considered under two heads: rheumatism of the locomotor apparatus, and rheumatism of the vasculo-motor apparatus. As to the former, the author begins with the statement, "Acute rheumatism we regard as a form of malarial fever." It is almost a pity that one who writes so well should not have had an opportunity of observing all the manifestations of malaria as they are seen in America. We think he would then hardly have made the foregoing statement. Aside from that, which he has not proved, as we have said before, he does not give us anything new in regard to rheumatism of the locomotor apparatus.

As becomes its importance, he gives large space to a consideration of rheumatism of the vasculo-motor apparatus. There are carefully written chapters on endocarditis and on pericarditis. No reference is made to tapping the pericardium. The author thinks that the difficulties of diagnosticating myocarditis have been greatly exaggerated, and yet he fails to give definite means by which the diagnosis can be made. He says "muffling of the heart's sounds arising in the course of acute or subacute rheumatism is diagnostic of inflammatory thickening of the ventricular walls." It would not be safe to make the diagnosis of myocarditis on such insufficient data. In ulcerative endocarditis (which the author does not refer to) the sounds are often muffled, even when there may be no myocarditis, and early in pericarditis the sounds may be muffled. Then, again, when rheumatism has existed a long time, and there are marked anæmia and exhaustion, the heart sounds may be slightly muffled.

The matter of treatment forms a very interesting part of the book. Alkalies are held to be of very little service. In this we can not agree with Dr. Maclagan. We have seen cases in which rheumatism was very much benefited by alkalies. The chief discussion is given to a comparison of the use of salicylic acid and salicin. The author considers the salicylic acid an excellent remedy, and agrees with most observers that its effects are rapid and excellent. He finds certain objections to it, however. It produces gastric disturbance. In many cases it causes great depression of the heart's action. It occasionally gives rise to most marked delirium. Salicin, while producing none of these ill effects, exerts all the good effects. If the author's conclusions are correct, then salicin should always be used in the treatment of acute articular rheumatism, and salicylic acid never. We have not met with so good success with salicin as the author has, and have succeeded in more cases with the salicylic acid than with salicin. We admit the objections to the salicylic acid that the author points out; at the same time we can not show so much enthusiasm as he does about salicin. One important point is very much emphasized—and that is that the remedy should be given in large doses, and repeated sufficiently often to produce its good results. It should be begun as soon as possible. Twenty to forty grains should be given every hour until there is decided relief of pain, and until with the continuance of the remedy the improvement progresses. "Often within twenty-four, generally within forty-eight hours, from the commencement of treatment the pain is gone, and the temperature is at or near the normal standard. As the symptoms decline, the dose may be diminished, but it is well not to do this too quickly or too early; the object in view is to keep the system persistently under the salicyl influence." The medicine should be taken some time after all pain has ceased. "It takes about an ounce of salicin to remove the acute symptoms. That quantity should be taken during the first sixteen or twenty-four hours. A second ounce should be consumed in the next forty-eight hours. After that twenty or thirty grains may be taken every four hours for three or four days, and for a week or ten days that quantity should be taken three times a day." We have no doubt the author is correct in his statement that the salicin and salicylic-acid treatment often fail because the prescriber does not fully recognize the importance of saturating the system with the remedy.

Maclagan is quite emphatic in his belief that salicin in many cases prevents the cardiac complications; and we do not see any reason why this should not be so, for any remedy which will arrest the disease in so short a time ought to prevent complications. The author combats, and successfully too, Senator's view that salicin is converted into salicylic acid in the blood.

The book closes with a chapter on hyperpyrexia in rheumatism. This subject has attracted much attention of late, and the author shows himself quite familiar with the literature of the subject. On the whole, he has given a good exposition of rheumatism, and, barring his enthusiasm in attempting to prove rheumatism to be of malarial origin, and his over-enthusiasm in his advocacy of the salicin treatment, we think the book a timely one.

Text-Book of Modern Midwifery. By RODNEY GLISAN, M. D., etc. Philadelphia: Presley Blakiston, 1881.

Second Notice.

IN the January number of the journal we gave our general impression of this work, and, in this concluding notice, we shall be able to mention only a few of the points that have attracted our attention.

Rather more than sixty pages are devoted to the usual anatomical and physiological introductory matter. This portion of the subject is handled satisfactorily in the main, and in the description of the nymphæ and of the hymen the author seems to have done better work than is usual with obstetrical writers, taking into account the brevity with which those parts are considered. *Per contra*, however, we think that he places the utero-sacral ligaments too low when he speaks of them as "extending from the posterior inferior surface of the uterus to the third and fourth sacral vertebræ."

Coming now to the physiology and pathology of the pregnant state, we note the following points: Rhythmical uterine contractions, upon which so much stress has been laid by Hicks, are spoken of as "a valuable symptom in differentiating uterine from other abdominal enlargements, and thus aiding in the diagnosis of pregnancy; for, when all extra-uterine tumors are eliminated, the question of pregnancy becomes greatly simplified"—an estimate that we consider a just one. Copeman's method of treating the vomiting of pregnancy, by dilatation of the cervix, is considered unadvisable, "except in special and very obstinate cases," as "such radical and perturbating modes of treatment [as Copeman's and Hewitt's] . . . are too apt to result in abortion." Our impression is, that experience thus far seems to justify a more favorable opinion of Copeman's method.

We can not refrain from quoting the following energetic and judicious expressions in regard to the physician's conduct toward women who seek to avoid the legitimate termination of pregnancy: "Criminal abortion is prohibited by the laws of God and of man; and the person who practices it, as, alas! too many do, is almost certain to be called to an account for his crime in the course of time, and will surely be in eternity. . . . The doctor must never yield to his patient's entreaties. Neither ought he to give her a mere placebo, as I have known physicians to do, for, besides creating false hopes, he runs the risk of a criminal prosecution should his patient abort in the mean time from unappreciable causes, and especially if she should die." We regret to see that, in the prevention of abortion, Dr. Glisan seems to attach some virtue to "suitable doses of acetate of lead." True, his chief reliance is on opium; but why should any trifling be tolerated? Chlorodyne and several other agents are more or less commended; but we fail to find any allusion to the viburnum prunifolium, a drug much employed of late years as a uterine sedative. The author's views on the treatment of hæmorrhage and of retention of portions of the ovum in cases of abortion are conservative, and, we think, judicious.

Many a novice must have found himself dismayed at his failure to make out the precise position of the child's head early in the process of parturition, as some text-books would lead him to feel that he ought to be able to do; but he may find solace in Dr. Glisan's statement that it is rarely possible to come to a conclusion on this point at the very beginning of labor. We are surprised to find it stated that the English obstetric posture is customary in this country, except in operative cases. Of all the plans proposed for preventing laceration of the perinæum, "very moderate support during the acme of the pain, with the palm of the hand placed against the perinæum, . . . so placed as to direct the presenting part along the perineal axis, and not backward," the author regards as the best. In precipitate labor he recommends chloroform by inhalation as the most efficient means of retarding the process of expulsion, but prefers hypodermic injections of morphine in case labor is not likely to be over within eight or ten minutes.

To overcome uterine relaxation after delivery, the physician is advised to "place his hand over the lower part of the abdomen, and press the organ with sufficient force to excite proper contraction." Now, to *press* the organ is not the whole story—it should be kneaded and compressed. Mere pressure does little if any good, and may do much harm. The author considers very narrow silk braid the best material with which to tie the cord, and he advises practitioners to carry their own ligatures with them. We regret not to find any discussion of the practice of delaying the ligation of the cord, a matter that has excited considerable attention of late. In the remarks on asphyxia neonatorum no mention is made of catheterization of the trachea. As to the treatment of an immature child, it is simply remarked that "all necessary means should be provided for keeping it alive." Surely, some specific instructions would not have been out of place.

In regard to the frequency of milk-fever, Dr. Glisan thinks common experience to be much in accord with that of Macan, who is quoted as having found a temperature of 100° F., or over, in rather more than half of four hundred and twenty-three cases. It is with justice, we think, that the author deprecates the over-use of quinine as an antipyretic in cases of puerperal fever. Leaving the pathology of the disease an open question, he mentions the septicæmia theory as the most convenient for purposes of teaching. Curiously enough, he speaks of bacteria as "animalcula," and classes various vaginal and uterine douches under the head of "astringent injections," although many of those mentioned have little if any astringent action, and certainly are not used for any such effect. To hasten the absorption of pelvic exudates, he thinks iodide of potassium has some value —more than is commonly accorded it. The reader is properly cautioned against the use of pilocarpine in puerperal convulsions, on account of the dangerous depression produced by it, but it is rather singular to find no mention of the danger of suffocation from profuse secretion accumulating in the air passages. The author is somewhat non-committal as to the expediency of blood-letting in cases of eclampsia.

Within the limited space that we can devote to Dr. Glisan's work, we have confined our remarks to that portion of it that deals with the more ordinary aspects of obstetric practice. In regard to the chapters devoted to the various forms of dystocia and to the accidents of parturition, we can only say, in a general way, that they are quite readable, and for the most part sound. While we think the work will seldom be referred to by professed obstetricians, it deserves a fair rank among those in common use by students and general practitioners.

Lectures on the Diagnosis and Treatment of Diseases of the Chest, Throat, and Nasal Cavities. By E. Fletcher Ingals, A. M., M. D., Lecturer on Diseases of the Chest and Physical Diagnosis, and on Laryngology, in the Post-graduate Course, Rush Medical College, etc. With 135 illustrations. New York: William Wood & Co., 1881. Pp. viii–437.

There is a place for a really good work embracing the subjects of the title given above. Does the present work fill the lacuna worthily? After careful consideration of its merits and deficiencies, we do not believe it does. Evidently its author is very familiar with the ordinary text-books on diseases of the heart, lungs, throat, and nose, and he has not hesitated at every step to make liberal use of their contents. In a general way, in the preface of this work, he makes acknowledgment to those to whom he owes so much, and mentions particularly the names of Cohen, Browne, and Mackenzie, for their courtesy in furnishing him with wood-cuts from their works. But, when we come to peruse the pages which follow, we are often surprised at no recognition being made for a familiar drawing, or for an expression of opinion which should be duly credited to some one else. In all, there are thirty-three lectures, eight of these being devoted to the different methods of physical exploration of the lungs in health and disease; six to the diagnosis and treatment of pulmonary diseases; and eight to the anatomy, physiology, physical exploration, diagnosis, and treatment of cardiac diseases and of diseases of the aorta. Laryngoscopy, the diagnosis and treatment of diseases of the fauces, of the larynx, and of the nasal passages, occupy the remaining lectures. In an appendix of eleven pages, various formulas of mixtures for cough, of gargles, lozenges, vapor, spray, dry and fuming inhalations, pigments, insufflations, and nasal douches are introduced. The volume terminates with quite a full index.

If the entire work had been solely devoted to methods of physical examination of the lungs, heart, throat, and nose, we should be able to add our testimony in its favor, as being one of moderate value for teaching these different arts to students of medicine in a clear and satisfactory manner. Apparently there is nothing sufficiently novel about the author's views to justify the publication of this volume, but they are at least well described, with enough details to make them interesting and with enough accuracy and good judgment to warrant a favorable comment. But this is not, we regret to add, the opinion we hold in regard to Dr. Ingals's descriptions of *diseases* of the heart, lungs, throat, and nose. They are altogether incomplete as regards symptoms, diagnosis, and treatment. No one who really wishes to acquire useful and valuable information to any proper amount could possibly accomplish it by the attentive study of this work. The best we could say of it would be, that it was a help to memory, as a work to "cram" on, so as to pass an examination. But such works are not desirable, nor should they be welcomed in our profession. We do not care to express our gratification at the issue of a volume similar to this one, nor do we consider it right so to do. In a large volume on general practice of medicine or surgery, we can only expect, now-a-days, when medical and surgical science is so extensive, that certain departments will be lightly passed over, or treated of with meager details. This acknowledgment is merely another way of stating that no man can be expected, at the present time, to be thorough master of all branches of a widely extended knowledge; and it is for this reason that "systems" of medicine and surgery, by different distinguished authors, are so much in vogue. But, when a man of repute undertakes to send forth a volume as being evidence and expression of exclusive devotion to a given line of study and research, we have a right to ask, in return, that we may be favored at least with one which shall establish this fact. If the knowledge afforded by the perusal of his work be only such as we can find elsewhere, written with many more details, and therefore far more instructively, what, then, was the motive of publication? If it be in this way that a cheap notoriety can be attained, more the shame for those who foster it. Otherwise, we set a just valuation on a production of the sort by stamping it as unnecessary. This is about the opinion we have formed of Dr. Ingals's work, particularly of that part of it devoted to special diseases of the lungs, heart, and throat. It is unnecessary, because it is incomplete and rapidly put together, and, while giving no new knowledge, presents what is already thoroughly and widely known with insufficient descriptions. To the man in a hurry, who wishes simply to have, in a few moments, the epitome of a disease—its symptoms, signs, diagnosis, and treatment—fresh upon his lips, it will, perhaps, answer a purpose; but to all others it will never afford any lasting information. The orthography, printing, and general appearance of the work are satisfactory.

BOOKS AND PAMPHLETS RECEIVED.—Congrès International de Laryngologie. 1re session, Milan, Septembre, 1880. Compte-Rendu publié par Charles Labus, Président du Congrès, sur les procès verbaux coordonnés par le secrétaire, M. Frua. Milan: Pierre Agnelli, 1882. Pp. vii–255. ═══ L'Hypermégalie et la Paralysie de la Luette et leur Influence de la Voix. Par Charles Labus, Professeur de Laryngoscopie à l'Université de Pavie, etc. Milan: Pierre Agnelli, 1882. Pp. 19. ═══ De la Lithotritie Rapide. Par le Dr. Reliquet, Lauréat de l'Institut, etc. Paris: Adrien Delahaye et Émile Lecrosnier, 1882. Pp. 79. ═══ Manual of Diseases of the Skin; with an Analysis of Eight Thousand Consecutive Cases and a Formulary. By L. Duncan Bulkley, A. M., M. D., Attending Physician for Skin and Venereal Diseases at the New York Hospital, Out-patient Department, etc. New York: G. P. Putnam's Sons, 1882. Pp. viii–312. [Price $1.25.] ═══ London Water Supply. Report, etc. By William Crookes, F. R. S., William Odling, M. B., F. R. S., F. R. C. P., etc., and C. Meymott Tidy, M. B., F. C. S., etc. ═══ The Incidental Effects of Drugs: a Pharmacological and Clinical Hand-book. By Dr. L. Lewin, Assistant at the Pharmacological Institute of the University of Berlin. Translated by W. T. Alexander, M. D. New York: William Wood & Co., 1882. Pp. 239. ═══ A System of Surgery, Theoretical and Practical, in Treatises by various Authors. Edited by T. Holmes, M. A. Cantab., Surgeon and Lecturer on Surgery at St. George's Hospital, etc. First American, from second English edition, thoroughly revised and much enlarged, by John H. Packard, A. M., M. D., Surgeon to the Episcopal and St. Joseph's Hospitals, Philadelphia, assisted by a large corps of the most eminent American Surgeons. In three volumes. Vol. III: Diseases of the Respiratory Organs, Diseases of the Bones, Joints, and Muscles, Diseases of the Nervous System, Gunshot Wounds, Operative and Minor Surgery, Miscellaneous Subjects. Philadelphia: Henry C. Lea's Son & Co., 1882. Pp. xxxv–27 to 1059, inclusive. ═══ Materia Medica and Therapeutics. Inorganic Substances. By Charles D. F. Phillips, M. D., M.

R. C. P., late Lecturer on Materia Medica and Therapeutics at the Westminster Hospital Medical School. Edited and adapted to the U. S. Pharmacopœia by Laurence Johnson, A. M., M. D., Lecturer on Medical Botany, Medical Department of the University of the City of New York, etc. Vol. I. New York: William Wood & Co., 1882. Pp. xii–298. [Wood's Library of Standard Medical Authors.] ══ Current Fallacies on Vaccination. By P. A. Taylor, M. P. Second edition. London: E. W. Allen, 1881. [Pamphlet.] ══ Transactions of the Medical Society of the State of Pennsylvania. Vol. xiii, part 2, 1881. ══ Fourth Biennial Report of the State Board of Health of Maryland. ══ Twenty-second Annual Report of the Superintendent of the State Asylum for Insane Criminals, Auburn, N. Y. ══ Ninety-second Annual Report of the Board of Trustees of the New York Dispensary. ══ In addition we have received a number of pamphlets, the separate acknowledgment of which is prevented by lack of space.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

(Concluded from May number.)

Dr. W. T. **Lusk**, of New York, said he might acknowledge one objection to the Tarnier forceps—namely, that it was of limited applicability. All he claimed for it was, that in the limited class of cases in which it was applicable nothing yet had been devised which could be substituted for it. It was, in his opinion, adapted to hardly more than the upper two inches of the pelvic canal, whereas for the outlet it was often a dangerous instrument. An objection had been made to the compressing screw of Tarnier's forceps. He, too, at first thought that this was detrimental, and was, therefore, one of the most violent opponents to it when the instrument was first exhibited. But the blades of the forceps were so unyielding, and our ability to estimate the amount of pressure could be so well regulated, that in practice he had not experienced the evils anticipated. The necessary compression of the child's head was proportioned to the amount of traction force exerted, and it had been said that the guide to this should be the operator's tactile sense, but, in reality, there was always a tendency on the part of the operator to exert excessive compression in difficult deliveries. In an instrument like Tarnier's, with firm blades, adjustable to the cranial surfaces, a steady compression was effected, but it was not necessary to push it to a dangerous extreme to prevent slipping of the blades. He held concerning Tarnier's instrument that when the pelvis was moderately contracted, or the circumstances were such as to demand immediate extraction, and at the same time the head was at the brim, so that it was necessary to apply the forceps inside the uterine cavity, there was an advantage in using the axis-traction instrument, whereas, with the common forceps, the tractions caused the head to impinge against the anterior pelvic wall. It was only in difficult cases, and under these circumstances, that he should recommend the use of the instrument to the exclusion of the older model. Dr. Smith had proposed to overcome these difficulties by pressing the shank downward with one hand and elevating the handle of the instrument with the other. This in many cases, perhaps, might be done perfectly and satisfactorily, but with the Tarnier forceps we could draw the center of the child's head through the center of the pelvis with nearly mathematical precision, and with an immense saving of force. Although the same result might be accomplished with the old instrument, he felt very much like this with regard to it: While we might go to Albany if we pleased by stage, that was no reason why we should not go by steam if we chose to. He thought that in the use of this instrument in the upper portion of the parturient canal there was less danger to the mother's soft parts and to the child's tissues than there was in that of the old instrument. But when the child's head was brought through the brim to the pelvic floor, where the parts began to converge about the forceps, and the handles to rise, he would remove this forceps at once, and apply the ordinary forceps. In all cases he would advise that, before the head passed the vulva, the instrument should be removed, and the head allowed to be expelled either by the powers of Nature or by digital pressure through the rectum. He would simply ask that the instrument be put to the test of practical experience, for that was the only true test from which logical deductions could be made. Many objections had been urged against the instrument, but they had come mostly from those who had founded their objections upon theory rather than upon practice. He might here state that he fully agreed with what Dr. Smith had said in regard to the pendulum movement of the forceps. [Dr. Lusk then demonstrated the use of Tarnier's forceps upon the manikin, and explained his modification of the instrument.]

Dr. **Barker** said he had no extended remarks to make upon this subject, for the reason that his views had been published in full in the "American Journal of Obstetrics," and had recently been expressed at the International Medical Congress, where the use of Tarnier's instrument was made the subject of discussion, and Tarnier was present himself to participate in it. Dr. Barker was called upon to express his views on that occasion, and he did so, and they would soon appear in the published transactions of the Congress. He might state, however, in the first place, that he echoed almost precisely the sentiments expressed by Dr. Lusk. Tarnier's instrument was of great value in a limited class of cases, and the inventor had supplied a want in obstetric forces which had not been supplied before. Its application must be limited as to its usefulness to just that class of cases in which immediate delivery was required for any cause, such as convulsions, etc., and the head was at the brim of the pelvis, or in cases of moderately contracted pelvis, in which delivery could not be effected by the forceps in ordinary use. The great principle of the instrument was this: by this forceps we were able, without injury to the soft parts, to make traction force precisely in the axis of the strait where the child was. After we had brought the head down below the axis of the superior strait, and reached the curve of the axis of the outlet, the instrument became a dangerous one, and should be removed immediately. In its limited application it was a useful instrument. Dr. Smith would pardon him for saying that he had listened to his paper with great pleasure, but he could not agree with him in the opinion which he had expressed, that the principle which Osiander advocated, and which Hermann's instrument illustrated, was the same as that upon which Tarnier's instrument operated.

He thought that they were radically and essentially different, and the difference consisted in this: the traction was not made with Tarnier's forceps by means of the handles. The handles had nothing to do with traction except to tell in which direction the head was going. The direction which the head took was precisely that which it would take if it were being driven solely and exclusively from behind by uterine contraction. It was the normal mechanism of labor. This instrument allowed Nature to accomplish the mechanism entirely, and the operator simply followed Nature. Now, by the principle of Osiander and the instrument of Hermann, we could inevitably follow, to a greater or less extent, the idea which the operator had concerning the direction in which the head should go, and that was entirely different from the mechanical accuracy with which the instrument of Tarnier operated. Dr. Smith had given us a beautiful theory, but certainly in some particulars it seemed to be utterly impracticable. Dr. Barker thought that there was in certain cases a physical impossibility of applying the forceps to the child's head in the superior strait, and that was on account of the resistance offered by the perinæum. He thought it would be impossible to apply the ordinary forceps in the class of cases to which he would exclusively confine the use of Tarnier's instrument.

Dr. W. T. Howard, of Baltimore, said it had so happened that during the last two years he had been called in consultation in a number of cases, and, as others had spoken of their personal experience, he trusted it would not be immodest to refer to his own. In five cases he had succeeded in delivering where older and more experienced practitioners had failed. He mentioned this simply to show that a good deal depended upon who used the forceps, and not so much upon the forceps itself. Dr. Smith, with his great experience and acknowledged skill, might have effected delivery in cases in which others had failed, but that fact did not necessarily prove the great superiority of the Davis forceps which he used, and which he (Dr. Howard) had used just fourteen years, and then given up for Simpson's. It only proved that Dr. Smith was possessed of tact and skill which the gentlemen who preceded him did not possess. Dr. Howard said that when he first read Dr. Barker's paper on the use of Tarnier's forceps he was struck with the simplicity and the rationale of the principle. It seemed perfectly reasonable. He afterward read Dr. A. R. Simpson's paper. When in New York last December he saw Tarnier's forceps for the first time, and, seeing that the handles were not used to make traction upon, but simply to show the direction in which the child's head should naturally go, he had a pair made with very much shorter handles, which answered the same purpose and were much less cumbersome. In February last he was called in consultation in a case in which the child's head was yet high in the pelvis, and rotation had not taken place. Hodge's forceps had been applied twice, but ineffectually; he then applied Simpson's forceps, and it also was ineffectual. He then introduced Tarnier's forceps with great facility, although it was the first time he had ever used it, and the delivery was effected without the least difficulty. He could have drawn the child's head down with one hand. The perinæum was not ruptured at all. The physician present was as much astonished as he was at the ease with which delivery was effected with Tarnier's forceps after failure with Hodge's and Simpson's. In June Dr. Howard delivered, in a similar case, with the greatest ease, and without injury to the perinæum by the head, although, when the shoulders came through, the perinæum was ruptured. He thought that the greatest objection to Tarnier's forceps had not yet been mentioned—namely, that we were enabled to exert such great force with it that we were in danger of rupturing the vagina in pulling down the child's head. As to the danger of doing injury to the child's head by compression, he was fully half an hour in delivering in the last case, for the very reason that he was afraid he might rupture the vagina, and yet the child's head was not injured in the least. While not using traction force he loosened the compressing screw. As he was sick during the meeting of the International Medical Congress in London, he did not hear Tarnier's remarks, but, while in Paris, Tarnier spent two hours in demonstrating his instrument to him. He was convinced that the objection to the instrument on account of its complication was more theoretical than practical, being made by gentlemen who had never used it. An instrument was complicated only to persons who had not used it, not to those who had become familiar with it. He thought that every one would recognize the value of Tarnier's instrument if he would give it an unprejudiced trial. He would not say that he would not use it except at the superior strait. Dr. A. R. Simpson, of Edinburgh, used no other forceps except Tarnier's.

Dr. ELLWOOD WILSON, of Philadelphia, said he was very glad to hear that Tarnier's forceps was discarded in a large class of cases, and those where the labor was advanced, and that it was then condemned as one which was liable to do harm. It was not an instrument adapted to extracting the child when the head was low in the pelvis. He thought that the principal difficulty in extracting the child from the superior strait arose in the narrowing of the antero-posterior diameter of the pelvis. That was the most frequent difficulty, and it consisted simply in a marginal narrowing in many cases; and in many cases well-directed encouragement to the woman, at the proper moment, would enable her to drive the child's head through that marginal narrowing, and thus avoid any instrumental interference. Now, he found that Dr. Lusk applied Tarnier's forceps not to the sides of the child's head, but to the sides of the pelvis; and, if in the living subject it was so applied, Dr. Wilson thought the baby would be born with neuralgia of the nerve which went over the eye. His practice had been to apply the forceps to the sides of the child's head, and it could be done as easily in the superior strait as anywhere else; and he wanted no more perfect instrument for this purpose than the Davis forceps, which had already been described and applied by Dr. Smith. He had had no experience in the use of Tarnier's forceps, and he must, therefore, accept the criticism that his objections were theoretical rather than practical. He was surprised when he heard it indorsed so strongly by some of the gentlemen of New York, and particularly by so high an authority as Dr. Barker and other gentlemen of large experience. However he should be greatly influenced by their statements, although he thought the instrument was a complex one and not adapted to many cases, and that it would not come into general use.

Dr. TAYLOR said that the view which he entertained with regard to delivery with the forceps was perfectly simple. It consisted in following the indications of the uterine forces and making traction in the axis of the pelvic canal. Every obstetric forceps was an axis-traction instrument. There was an imaginary axis for the superior strait, for the cavity, and for the outlet, and the forceps was applied and traction made coincident with these axes, respectively. There was one thing which should be taken into consideration in making traction, which had not received due attention—namely, that the form of the pubes was not the same in all cases. This fact had been illustrated in a case in which he had been called in consultation. In this case the child could not be extracted with the curved forceps, because of the peculiar shape of the pubes, and it was a question whether craniotomy should be performed. Dr. Taylor suggested a trial of the straight forceps, and, on applying it, the child was born in a moment. Nature taught us in what direction we should make traction, and the time for doing so. No head was born without it made its proper parabolic curve. The important points consisted not so much in the kind of instrument used as in a knowledge of the pelvic axis, of the direction in which traction should be made, and these things were taught us by Nature. He could not see the great advantage claimed for Tarnier's forceps. He had not used it, but he could not see that axis traction belonged to that forceps more than to others. If we understood the axis of the pelvis, it was immaterial what forceps we used, for Nature would tell us in what direction to make traction. Sometimes, in applying the forceps, he could not succeed in drawing the head down; and, after vainly trying for fifteen or twenty minutes to effect delivery, he had taken the instrument off and reapplied it, and then, with the greatest ease, extracted the child's head. He, therefore, believed that the forceps was sometimes an impediment to delivery, if the traction were too long-continued and too forcible. During the past twenty-five years he had not drawn a head over the perinæum with the forceps. He always took it off at this stage, and completed the delivery by hand—i. e., by placing two fingers on the posterior perinæum and enucleating the head during the relaxation of the uterus, and not during its contraction.

Dr. Thomas said he had not had the pleasure of hearing Dr. Smith's paper, and he would, therefore, be obliged to limit his remarks to the subject of Tarnier's forceps, with which he had had some experience, and with regard to the value of which he had some decided views. He was one of those who believed in mechanical appliances in medicine, and it seemed to him that the advances which had been made in the study of almost all forms of disease had been made in the improvement of instruments of precision, and in the improvement of mechanical appliances and means for the investigation and relief of human suffering. But little was known of diseases of the lungs until the days of auscultation and percussion, and the use of the stethoscope. Diseases of the eye were now thoroughly investigated by means of the ophthalmoscope; light was shed upon diseases of the larynx by means of the laryngoscope; and diseases of the uterus had been studied as only they could be by means of the speculum and Sims's method of investigation. The original Chamberlen forceps gave us a new method of extracting a child's head, but after that day no great improvement was made until Smellie gave us the pelvic curve, and since that time what had we done? Almost nothing until the time of Tarnier. Dr. Barker had expressed his (Dr. Thomas's) opinion when he said that Tarnier's forceps had developed a new force in obstetric art. He had used the instrument where the child's head was at the superior strait, and he had been exceedingly pleased with it. He did not believe that it would pass away. He believed that the principle upon which it operated was exceedingly useful, although the precise method of its application might develop some changes in the form of the instrument. He would not apply it when the child's head was low in the pelvis under any circumstances. It should not be used low in the pelvis. His plan had been to draw the head well down into the pelvis and then remove the instrument at once, and use the ordinary forceps for completing the delivery. His appreciation of the instrument was this: that, being a mechanical appliance by which traction could be made mathematically in the direction of the superior strait, it was a great improvement in mechanical appliances, which would accomplish very much good.

Dr. **Reamy** remarked that his friend, Dr. Howard, had stated that all who had not indorsed Tarnier's forceps were persons who had never tried it. That was a mistake, and he deemed it a duty, both to himself and to those who had received instruction under him, to correct it. It was a well-known fact that he had taught obstetrics for a good many years, and he had been consulted in a great many cases of difficult labor, yet it was not his custom to recommend Tarnier's forceps, although he had used it in a sufficient number of cases to have, as Dr. Thomas had expressed it, clear convictions upon the subject, and his convictions were that it was not only limited absolutely to cases in which force had to be applied to the child's head at the superior strait, but, as Dr. Lusk had said, it was applicable only to a limited number of that class of cases. Dr. Lusk had stated that the instrument must be applied in relation to the pelvic walls, without reference to the position of the child's head. Dr. Howard, it was true, thought that its use was not thus limited, but he (Dr. Reamy) stated very emphatically that he believed the instrument could only be applied in relation to the pelvic walls, without regard to the position of the child's head. It could not be applied in any other way at the superior strait, and used with force in bringing the head through. In at least seventy-five per cent. of the cases which required the aid of the obstetrician in bringing the head through the brim, the difficulty was a marginal obstruction, due to narrowing of the antero-posterior diameter. Now, when traction was made upon the forceps, the diameters of the child's head which were resisted by the abridged inlet were, if possible, increased. Of course, this increase in the diameter was only to a very limited extent, but an increase of two centimetres was a very considerable amount in a case in which the head already refused to pass through. The instrument which he used was applied obliquely, not laterally; one blade was placed behind one ear, and the other blade in front of the other ear, and, when compression was made, the transverse diameter of the head, instead of being increased, was positively diminished in a slight degree, and then by making well-directed traction the head could be brought through the abridged inlet down into the pelvic cavity. He was aware that the practicability of thus applying the forceps was denied in high quarters—nevertheless he practiced it. It was his opinion that if, in a case in which great force had to be exerted, Tarnier's forceps was skillfully applied at just the right point, it would answer a purpose which, perhaps, no other instrument would, but this would limit its use to so small a number of cases that none but an expert would be justified in employing it. A successful delivery depended upon the familiarity of the operator with the straits of the pelvis, recognition of the character and location of the abridgment, and mechanical ingenuity in making traction in the proper direction with the proper instrument. He considered Tarnier's instrument useful only in an extremely limited number of cases, and he had arrived at this conclusion after some experience in its use.

Dr. **Smith** said his paper was not written for the purpose of criticising the Tarnier forceps, but simply to show that everything that could be done with forceps of any kind could be accomplished with the old ones; that with them we could effect delivery from the superior strait or above it, from the pelvic excavation, and, if necessary, from the perinæum. This unlimited range of applicability was made possible by the principle laid down by Osiander, that traction should be made in the line of the pelvic axis by leverage. It was upon the question of the leverage that he wished to lay particular stress, for the idea with other authors than Osiander had been to make traction in the direction of the handles of the forceps. Now, this idea was utterly opposed to that of Osiander, who did not use the handles as a guide to the direction in which to make traction at all, but used them simply as levers with which to make the head of the child rotate around the pelvic center. He had attacked the Tarnier forceps, as previously said, simply upon theoretical grounds, as a method which had been suggested for making axis traction based on different principles from those on which the old forceps worked. Dr. Barker, Dr. Lusk, and all the gentlemen but Dr. Howard, who had spoken in favor of the Tarnier forceps, had admitted that it was of limited applicability, and had even admitted that it was a dangerous instrument to use low in the pelvis. Now, with the Davis forceps there was no such danger, and its use was not limited by the position of the child's head. If necessary, it could be disarranged and taken off with the greatest ease. With regard to rotation, suppose the Tarnier forceps to be applied either laterally or obliquely in a case of right occipito-posterior position, in which, of course, the mechanism of the pelvis required that the occiput should rotate anteriorly; on making traction upon the rods the main force came upon the left blade, and tended to twist it around in a posterior direction, thus outraging the laws of Nature by compelling posterior rotation when she required anterior. With the Davis forceps, traction was made in a manner to allow of natural rotation. He said this not upon theoretical grounds; it was the testimony of those who in using Tarnier's forceps in such cases had found themselves in a worse dilemma than if they had not attempted to use it in the first place. The difficulty in removing the Tarnier forceps was an important matter. All had said that they removed the forceps after the head had made a certain amount of descent, but we knew very well that the head, after clearing the brim of the pelvis, sometimes made a sudden and rapid move down upon the perinæum, and in that case it was necessary, of course, to remove the instrument quickly; how much more difficult to loosen this screw and disengage the blades than simply to separate the handles of the Davis forceps! Dr. Barker had remarked that there was less danger to the soft parts from the Tarnier forceps than from the Davis, but with the latter instrument, said Dr. Smith, there was no more danger to the soft parts than if it was not there at all. No instrument in the world could pass with greater safety to the child's head and the mother's parts.

NEW YORK MEDICAL AND SURGICAL SOCIETY.

A STATED meeting was held February 11, 1882, Dr. T. GAILLARD THOMAS, President, in the chair.

EXTIRPATION OF THE UTERUS FOR CANCER.—Dr. T. A. EMMET presented a specimen, and related more at length the history of the case which he had previously given at the New York Obstetrical Society, February 7, 1882. The following were the additional facts in the case from that date: On the 7th of February the patient's temperature was 99·25° and the pulse 106, and he considered her out of danger. On removing the dressing, perfect union was found to have taken place in the abdominal wound. In the evening, however, the tongue began to get dry, the pulse rose rapidly, and acute septic peritonitis developed, terminating in death in twenty-four hours. The post-mortem examination revealed several points of interest: in the first place, that it was perfectly useless to attempt to drain the pelvis in such cases. It was necessary to add that, when the temperature and the pulse rose, with evidence of blood poisoning, the wound in the vagina and abdomen was opened, requiring considerable force to effect it. Everything was found to have healed perfectly. A drainage-tube was then inserted, and the parts were washed as clean as possible through the vagina. In breaking up some of the adhesions there was unavoidably a little loss of blood. This attempt at drainage, however, was of no effect, for at the post-mortem about four ounces of bloody serum were found pocketed behind and back against the rectum, in the hollow of the sacrum—a point below where it was possible to secure drainage by the opening in the vagina. Although the case was a most favorable one for the operation, it had terminated fatally, and, for the sake of other patients, he thought it well, perhaps, that it had, inasmuch as, if she had recovered, the operation probably would be needlessly resorted to in many cases. Circumstances justifying the procedure of removing the uterus for cancer could but very seldom arise; with regard to fibrous tumors, it might, perhaps, be different. In reply to a question by Dr. Alonzo Clark with regard to the statistics of the operation, Dr. Emmet said he believed about twenty per cent. recovered from the operation when the uterus was removed by the vaginal method. Had he had instruments by which the ligatures could be passed easily, he thought the time of the operation might have been shortened from two hours to half an hour, not longer than was required for an ordinary ovariotomy, in which case, he thought, the chances of recovery would be greatly increased. In the present case, the ligatures having prevented hæmorrhage, there was no shock, and he did not understand why, as was also often true in ovariotomy, an active attack of peritonitis developed just as the patient apparently was about to become convalescent, and carried her off.

Dr. Clark inquired whether Dr. Kimball's was the first case of removal of the uterus, to which the President replied in the affirmative. But Dr. Emmet recalled an article in one of the medical journals, which stated that the uterus was removed in the year 100. Dr. Clark said that Dr. Kimball brought him the uterus after its removal, in his case, and stated that when he operated he supposed the case was one of tumor. The patient recovered. Dr. Clark entertained the same thought respecting the operation which Dr. Emmet had expressed—namely, that if the patient had recovered it would probably lead to the sacrifice of a great many lives.

Dr. Emmet remarked that the removal of a portion of the uterus, down, for instance, as low as the vaginal junction, had been done many times, and it was a much less formidable operation, and one of less risk to the patient, than the removal of the entire organ. In reply to a question by Dr. Post as to whether the statistics did not show a larger percentage of recovery when the uterus was removed *per vaginam*, Dr. Emmet said they did, but he could not imagine a blinder procedure than to operate by this method, as there were no landmarks to go by. In reply to Dr. Post's suggestion that drainage might be more perfect, Dr. Emmet said that under any circumstances, unless the woman was kept constantly on her feet, the fluid would accumulate next to the rectum, at a point lower than the opening for drainage, and it was difficult, too, to keep the opening patent, because of the tendency of the peritoneal surfaces here to unite within a very short time. He had often tried Dr. Peaslee's plan of drainage and washing out the peritoneal cavity, but he had found that adhesions took place so rapidly that it could not be done effectually. He had sometimes thought that by leaving a quantity of artificial serum in the abdomen we might prevent such adhesions taking place, and thus make it practicable to wash out the peritoneal cavity.

The President, who had witnessed the operation, said that the impressions which it had made upon his mind were exactly those which Dr. Emmet had expressed. If immunity from the disease were promised by it, he thought that, in spite of all difficulties, extirpation of the uterus for cancer would in time become a fixed operation; but we all knew that the statistics proved that after the operation had been performed a great many patients died of a relapse of the disease; that, after all the immense risks to which the patient's life had been exposed, no good came from it whatever. Of all forms of cancer, that of the uterus must present itself to the notice of the surgeon later than any other. If a woman had cancer of the breast she felt of it, looked at it, compared it with the breasts of her neighbors, and talked to friends about it, and it was early brought to the physician's attention; and so with cancer of any other external part of the body. But, in case of cancer of the uterus, the patient's attention was not usually drawn to it at all until an advanced stage. He therefore thought that extirpation of the uterus for cancer would become obsolete in time, because of the great difficulties and dangers attending the operation itself, and the fact that if the operation were successful it did not give immunity from the disease. He thought, however, that it was exceedingly important to draw a line of distinction between an operation for cancer and one for tumors of the uterus; and, since Dr. Clark's remark, it would seem, was intended to apply equally to both, he must say that he did not agree with him at all in that matter. The surgery of to-day demanded the removal of the uterus for tumors, and he believed that the surgeon who was not prepared to remove the uterus for certain kinds of tumor was not prepared to do his duty. [Dr. Clark here said that the uterus removed by Dr. Kimball had a large, soft fibrous tumor upon it.] To-day, continued Dr. Thomas, we had to remove the uterus for fibrous tumors, for ovarian tumors when attached to the uterus, and for fibro-cystic tumors. By way of illustrating his views, the following case was narrated: Eight or nine months ago a patient came to him from Dr. Edgerton, of Middletown, Conn. She had what Dr. Thomas supposed to be a large semi-solid colloid tumor of the ovary. No amount of effort enabled him to touch the uterus anywhere; it was drawn above the pelvis. By introducing two fingers and using a great deal of force, he thought he could feel the cervix obscurely, but he was not positive of it; the tumor filled the whole pelvis. Within the abdomen there was a mass, upon the surface of which could be felt what appeared to be the uterus, and which afterward proved to be that organ above the symphysis pubis, the cervix being drawn far up out of reach *per vaginam*. He sent the patient home with the statement that he thought she would live a year or eighteen months without an operation, and told Dr. Edgerton that he thought the chances from an operation were eighty in favor of death and twenty in favor of recovery. The patient remained at home eight or nine months, when she returned and said that she felt that she was failing rapidly, and (being a conscientious and religious woman) felt it her duty, if there was one chance in a hundred for recovery, to submit to an operation. Her husband looked upon it in the same light. After six weeks Dr. Thomas operated upon her in the Woman's Hospital. Cutting down, he found an ordinary semi-solid ovarian tumor, into which he passed a very large trocar, larger than his thumb, but the fluid would not flow out. He then cut into the tumor, and passed his hand in and scooped out a great deal of semi-solid, colloid material. All separate cysts were then removed. The tumor was firmly united to the uterus, and the adhesions had to be torn from the commencement to the end of the operation. This large mass, which was at least twelve to fourteen inches long, was then held up by an assistant, and a clamp was applied and tightened. It was found that the bladder was attached to the uterus, and had been included in the clamp. After removing the clamp, the bladder was torn away from its attachments, and the clamp was applied again. By vaginal touch he could then tell that the clamp compressed the uterus exactly at the internal os. The mass was cut away, and the stump was seared with a hot iron. Dr. Thomas had not the least idea that the patient would recover, but happily not a bad symptom arose. On one occasion the temperature went up to 103° F., but this was due to a mural abscess, and it went down immediately when this discharged. He had seen the patient to-day, six weeks after the operation, and she was up and walking about. The whole portion of the uterus contained in the clamp had sloughed off, the cavity had been syringed out with carbolized water, and the patient was now perfectly well. This was the eleventh time he had removed the whole, or nearly the whole, of the uterus, in the first class placing a ligature around the vagina just below the cervix. Six patients had recovered; five had died. Not one could have lived long had the operation not been performed. The tumors were either fibrous, fibro-cystic, or ovarian, and had remained as long as the system could tolerate them. He proposed to remove the uterus on Saturday next, and the circumstances which called for it were as follows: A woman twenty-six years of age was admitted to the Woman's Hospital six or eight months ago. She had a perfectly solid fibrous tumor, about as large as the uterus at the seventh month of gestation. She was bleeding very profusely at her menstrual periods because of the tumor. She suffered a great deal of physical pain as well as mental anxiety. The uterine cavity was very much elongated. The patient was a servant girl, and entirely dependent upon her own labor for support, but her physical ailments were such that she could not make a livelihood. She could not remain in this hospital much longer, and no other hospital would be likely to take her in because of the nature of her trouble—that of a fibroid tumor. She therefore wished to have the operation performed next Saturday. From the experience which he had had, Dr. Thomas looked upon her chances for recovery as about fifty per cent.—that the balance was fairly made between life and death; but the tumor was steadily growing, the woman was wasting away, all known therapeutic means had been resorted to, but he could see no change except that she was going down. It therefore seemed to him that the line of duty was a very clear one. It was in this class of cases that all his operations had been performed—namely, cases in which the tumor was almost certain to destroy life within a year or eighteen months. Such were the circumstances which made him feel that it was his duty to remove the uterus next week, and he must say that, if he did not operate, and death should take place, which it would almost certainly do, he would feel that he was responsible for that issue.

Dr. **Emmet** asked in how many of the cases there was removal of the entire uterus, and in how many only partial removal, for he thought the difference as to danger to life would be as five to one.

The **President** replied that, out of the eleven cases, in two the entire uterus was removed, in six it was removed at or below the utero-vaginal junction, and in five not quite so low down. In reply to Dr. Post's question, which he considered the more dangerous, removal at the internal os or at the vaginal junction, Dr. Thomas replied, the latter at present; at the middle of or lower down on the cervix, above the utero-vaginal junction, he did not think there was any difference. He believed, however, that in the course of time, when the awkwardness pertaining to clamps and ligatures could be overcome, the removal of the whole uterus would be the safer operation. It was the more dangerous now because of the more imperfect means of accomplishing it. This, however, was contrary to the opinion expressed by Olshausen.

Dr. A. C. **Post** referred to a case of fibro-cystic tumor of the uterus in which the question of operation arose. One half of the tumor, which was of large size, was perfectly solid and nodulated, the other half fluctuating. The latter part was aspirated, and about a gallon of sero-purulent fluid was withdrawn. The patient was very much relieved, and after a few weeks returned home, the tumor having been reduced about one half in size. Another woman had a solid fibrous tumor, nodulated and very irregular. Considerable hæmorrhage occurred at one, and only one, menstrual period. The patient was fifty-one years of age, and the menopause had not yet arrived. He advised her very strongly not to have any operation done until the menopause was reached, for she was not now suffering much from the presence of the tumor, and the arrival of that event might bring about a favorable change.

The **President** thought the most dangerous gynæcologist was he who started out with the idea of removing the uterus simply because of the presence of a fibrous tumor; the operation was justified only because of approaching death.

Dr. **Clark** remarked that probably some of the members of the society would remember a woman, named Radway, who had been around to many of the physicians some fifteen years ago, suffering from a large, hard fibrous tumor of the ovary. After coming to see him a series of times, more in a friendly way than for professional advice, she passed from under his notice for about three years, and he supposed some one had persuaded her to allow him to remove the tumor, and that she had died; but she then appeared again, and the tumor had diminished almost to nothing. She said a doctor in Newark had treated her with mercury, and the tumor had gradually disappeared.

Dr. G. A. **Peters** remarked that a physician in Indianapolis claimed to have cured these cases with four pounds of rare beef a day.

The **President** remarked that Dr. Hewson, of Philadelphia, was said to have obtained wonderful results in these cases by enveloping the patient in earth.

Dr. **Fordyce Barker** referred to a case which he had seen in England, which had been pronounced by Sir William Fergusson, Mr. Erichsen, and others to be cancer of the breast. It disappeared under this man's treatment, leaving some scars. Dr. Barker remarked that perhaps he ought not to speak upon this subject, since he no longer performed surgical operations, either in gynæcology or in general surgery, but, as he was often called upon by his professional brethren to give an opinion in cases of cancer, he had carefully studied this disease and the results of treatment, and would therefore venture to say a few words. His opinion concerning the nature of cancer had entirely changed since some years ago; formerly he regarded it as a constitutional disease from the first, but now he believed it to be primarily a local affection, the general system becoming infected as a secondary result. He had so expressed himself in a paper before the Academy about eight years ago, and since then he had seen many cases in confirmation of that opinion—cases in which, after removal of the cancerous breast, for instance, the disease did not return. He believed the same rule held with regard to cancer of the uterus; that primarily it was a local disease, and, if the organ were removed in time, in many cases there might be no return or constistutional infection. He had now under observation a case of cancer of the uteru, that rare form commencing, not in the neck, but in the cavity of the organ, and if he could persuade the patient to submit to the removal of the uterus, he was prepared to undertake it. There was a mass of accumulating evidence that many of the cases which he had been accustomed to regard as constitutional in their origin were really primarily local, and that by removing the whole of the diseased tissue we greatly increased the probabilities of the patient's recovery.

Dr. Emmet agreed with Dr. Barker that there was no question but that many forms of malignant disease were local in the beginning, but the trouble was, we did not see the patient early enough, especially in cases of cancer of the uterus. Moreover, the proportion of cures after all operations was only about five per cent.

Dr. Post remarked that this percentage had of late been largely increased, being about ten per cent. now.

Dr. Barker said we should also consider the fact that new growths progressed less rapidly in parts which were supplied with a minor degree of vitality or vascular supply, and this was highly true of the uterus, excepting at the menstrual period. The breast had a much more active continuous vascular supply, yet removal of this organ for cancer sometimes resulted in cure.

The President remarked that he did not think the difference of opinion between Dr. Barker and those who had spoken before was so great as might be supposed. Dr. Barker had arrived in time to hear only the latter part of his (the President's) remarks, in which he had expressed himself strongly against the operation for removal of the uterus in cases of cancer; but he had not heard the reasons for that opinion—namely, the great difficulty of making an early diagnosis, the great difficulty attending the extirpation of the uterus, and, lastly, that in cases in which the uterus had been removed for cancer over fifty per cent. of the patients had died from a rapid return of the disease. Therefore, he and Dr. Emmet had at present taken ground against the operation. Dr. Emmet had placed the percentage of recoveries from the operation itself at twenty; of that twenty per cent. of the patients, the President said he was satisfied ten per cent. would die from a return of the disease, which would be putting the chances for the patient very low indeed.

Dr. Barker said he came in in time only to hear the President's last words. He would not have his remarks convey the idea that he was in favor of the operation, but only that our treatment would become more and more successful as we came more and more to recognize the fact that cancer was at the beginning a local and not a constitutional affection. He asked under what circumstances the uterus was removed nearly seventy years ago, to which Dr. Emmet replied that he believed it was for prolapsus of the uterus.

The President remarked that there was a case on record over a hundred years ago of an insane woman in England, who had complete prolapsus of the uterus, and, becoming desperate, took a razor and cut the uterus entirely away. She recovered.

Dr. Emmet thought that there was something about the vitality of patients suffering from malignant disease which seemed to disable them from bearing surgical procedures well; just as in cases of ovariotomy, as we all knew, the shock was worse if the case was complicated by a papilloma springing from the lining surface of the sac. He should think, therefore, that in a case of simple fibrous tumor the operation would be less dangerous than in a case of malignant disease.

Dr. **Francois Delafield** did not think that there was any particular use in theorizing with regard to whether the disease were local or general. We could simply learn from statistics. We knew that new growths in general in different parts of the body acted differently according to their seat. For example, tumors in the eye were called glioma, but they were as malignant as tumors in any part of the body. Although they might be circumscribed in the eyeball, if they were removed it was very exceptional for them not to recur; not to be followed by metastatic growth in other parts the body; not to cause death in a very short time; and yet tumors were exactly of the same structure if they occurred in the brain and remained apparently local, gave rise to no metastatic growths, and did no harm except by pressure. The same was true of sarcomata of other parts of the body. The sarcomata that grew beneath the skin, in the subcutaneous connective tissue, had a very much better prognosis than tumors of just the same structure connected with bone. If we came to epithelial growths, those of the uterus, so far as their anatomy was concerned, were very much like those of the skin, and yet the prognosis was entirely different after removal in the two cases. If removed from the skin while still small, the prognosis was good; whereas, if removed from the cervix, the disease usually returned. He did not think that we could go beyond mere practical experience—certainly not at present. We could not go beyond the mere accumulation of statistics as to how often such and such a structure in such a given part of the body recurred after operation.

Dr. C. R. **Agnew** remarked that some years ago he removed the entire eyeball of an infant six months old for a tumor which occupied one fourth of the vitreous. It was examined by Dr. Eno, and was found to contain glioma elements in such abundance, back to the point of section of the optic nerve, that the inevitable conclusion was that all of the diseased tissue had not been removed. In less than eighteen months the disease reappeared in the fellow-eye. That eye also was enucleated, care being taken to remove as much of the optic nerve as possible. Either Dr. Delafield or Dr. Prudden examined that specimen, and found glioma elements. This was about nine years ago, yet the disease had not recurred, and the patient was now a healthy boy. It was interesting in the fact that the disease had not yet returned, although its essential elements, so far as was known, were left in the optic nerve. He would like to ask of the gentlemen who had so much to do with tumors whether they had found any course of hygiene or dietetics have any effect upon their growth. Some time ago a woman suffering with what appeared to him to be a malignant growth of the orbit came under his care, and the tumor was making such rapid progress that the question arose as to the propriety of enucleating the globe. He prescribed a diet of bread and milk with fruit, and the patient, being a woman of great firmness and determination, adhered to his instructions for seven months, during which time the tumor was arrested in its growth. Possibly it was a mere coincidence, for we knew that tumors did sometimes grow to a certain size, and then for some unknown reason their progress was arrested.

Dr. **Post** referred to the fact that Dr. Atlee, of Philadelphia, some years ago, at the American Medical Association, spoke of administering Fowler's solution of arsenic to patients after removal of the breast for cancer, finding, he thought, that it had a great prophylactic effect against a recurrence of the disease. The drug was administered in three-drop doses, three times a day, for a number of years.

Dr. **Peters** remarked that he had seen the general health very much improved under the administration of arsenic, but he had never seen any local effect on the disease. He had also tried thuja occidentalis in a number of cases, but without apparent effect.

Dr. **Barker** stated that a patient in whose case Professor Simpson had made the diagnosis of cancer of the uterus took arsenic afterward for twelve years. Dr. Barker had a woman under his care at present who six years ago had cancer of the uterus in such degree that the cavity was scooped out by its ravages. She was still living, having now passed the menopause, and the disease was very slowly progressing. Arsenic had not been omitted a single day during the six years.

Dr. **Peters** remarked that he had removed cancer two or three times, after recurrence, in several cases, the time extending from three to sixteen years. He had not used arsenic in these cases.

Dr. J. T. **Metcalfe** said that twenty years ago the cancerous breast of an unmarried woman twenty-one years of age was removed under his advice, and she had not had a bad symptom since. In many other cases, however, the result was by no means so satisfactory. He thought the question was, What cases were favorable, and what ones not favorable, for the operation. He could not see that we had come any nearer to the solution of this question than we were many years ago. It was true that there were certain local and general conditions which in certain cases contraindicated it, but in cases adjudged proper for the operation we were unable, now as in former years, to tell the patient whether there would be a recurrence of the disease. We might say with regard to this matter, as his old French teacher used to say with regard to the use of the definite article: "One rule will always aid you—that sometimes you do use it, and sometimes you do not, and you will never go wrong if you remember that."

The **President** said that nine years ago he removed the cervix for cancer at the College of Physicians and Surgeons before a class, using the galvanic-cautery wire, which had then just been introduced. Dr. Delafield examined the specimen, and pronounced it a typical one of carcinoma uteri. That patient was well to-day, was keeping a boarding-house, and came to see him once in six months. At one time some granulations sprung up on the stump, but had not returned after being touched with glacial acetic acid. In another case, that of the wife of a physician, the disease had not returned, although the cervix was removed for cancer six years ago. It was pronounced to be undoubtedly carcinomatous disease. Three other cases of the same character, extending over not quite so long a period of time, had occurred in his practice.

Dr. **Barker** remarked that eleven years ago he removed a cancerous breast, and the disease had not yet returned. Of three of the patient's sisters, whom he attended, two died of cancer of the breast.

Dr. **Delafield** said that it seemed to him, the wonder was, not that so many patients with cancer of the cervix uteri should recover after operation as had been reported, but rather that more did not recover. A great many of the cases resembled very closely indeed cancer of the skin, which, while still local, offered so favorable a prognosis. Still, from a large mass of statistics, there was no doubt that the operation was not a very satisfactory one.

Dr. **Emmet** said that he could recall a number of cases in which he had removed the cervix for cancer, and there had been no return of the disease, but he had always thought that in such cases there had been an error in diagnosis, for certainly the rule was in favor of recurrence. He had come to the conclusion, however, that it was better to operate even after the cancerous cachexia had developed, not for the purpose of effecting a cure, but to make the patient more comfortable. The numerous lymphatic glands in this neighborhood favored the rapid absorption of cancerous material, and the surgeon rarely saw the case or operated before this had taken place. In this opinion Dr. Thomas and Dr. Delafield concurred.

THERAPEUTICAL SOCIETY OF NEW YORK.

At the annual meeting held October 14, 1881, the officers elected for the ensuing year were: President, Dr. Andrew H. Smith; 1st Vice-President, Dr. E. C. Seguin; 2d Vice-President, Dr. H. T. Hanks; Secretary, Dr. O. B. Douglas; Corresponding Secretary and Treasurer, Dr. V. P. Gibney; Councilors, Dr. E. R. Squibb and Dr. T. E. Satterthwaite.

Letters to the Editor.

AMERICAN AND FOREIGN SURGICAL INSTRUMENTS.

New York, *May* 6, 1882.

To the Editor of the New York Medical Journal.

Sir: American surgeons are probably the most progressive of their class throughout the world, and they demand that the tools incident to their profession shall be the best obtainable. It is, unfortunately, true that many American manufacturers, in their eagerness to supply cheap surgical instruments, turn out goods that are almost worthless, a bright polish in many instances covering serious defects in their working qualities as edged tools. The American axe and some brands of general cutlery have by sterling quality made for themselves the first place in the markets of the world, and there is no valid reason why American-made surgical instruments should not have an equal reputation for general excellence both at home and abroad. It is a crushing blow to the physician, and perilous to the patient, to have the obstetrical forceps break at a critical moment for want of being properly tempered, or an amputating knife not cut with precision for want of proper adaptation between handle and blade, or an improperly ground edge. In American work frequently the blades of bivalve speculums will be found not to meet with the perfect accuracy that is required. Rivets instead of screws are used with these cheap speculums, which are liable to wound tender mucous surfaces. While it is commendable for a manufacturer to work for a reasonable profit, yet he can not conscientiously turn out inferior and unreliable instruments merely to produce cheap goods. An honestly constructed, properly tempered surgical instrument will by care last through a lifetime of practice, and a physician should examine the implements he buys with the critical skill of a mechanic. American-made implements, in consequence of this unreasonable catering to cheapness, have heretofore lacked many of the essential qualities of perfect instruments. Surgeons have been, in many instances, compelled to send abroad for a supply that was absolutely reliable. It is gratifying to our patriotic pride to be assured that in the near future American-made surgical instruments will be constructed in such a finished manner as to defy legitimate professional criticism. American dental instruments are conceded to be the best in the world, and it is perfectly practicable to have American surgical instruments attain the recognized first rank among the remedial appliances of humanity. C. H. H.

In behalf of the united surgical instrument-makers of New York and vicinity.

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Reports on the Progress of Medicine.

MONTHLY REPORT ON OBSTETRICS AND GYNÆCOLOGY.

No. XVII.

BY ANDREW F. CURRIER, M. D.

OBSTETRICS.

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2. Gallard, T.—Sur la conception dans le cours de l'aménorrhée. "Ann. de Gynéc.," Mar., 1882.
3. Clark, J. E.—A case of true molar pregnancy. "Mich. Med. News," Mar. 25, 1882.
4. Zweifel, P.—Ueber Vaginitis emphysematosa und den Nachweis des Trimethylamins in der Vagina. "Arch. f. Gynäk.," xviii, 3, 1881.
5. Alcorta, G.—Diagnostico del aborto.—Su importancia legal. "Gac. Méd. de México," xvii, 2, 1882.
6. Smythe, A. G.—Viburnum prunifolium unreliable in abortion—a rejoinder. "South. Med. Record," Mar., 1882.
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8. Hubert, E.—La manœuvre du forceps, d'après M. Pajot. "Rev. Méd.," Mar., 1882.
9. Simpson, A. R.—Case of basilysis. "Edinb. Med. Jour.," Mar., 1882.
10. Harris, R. P.—Progress of obstetrical surgery. Abdominal deliveries in the United States during the year 1880. Five Cæsarean and three Porro-Cæsarean operations. "Am. Jour. of the Med. Sci.," Apr., 1882.
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16. Boine, J.—Observation de grossesse abdominale; difficultés du diagnostic; gastrotomie; mort. "Rev. Méd.," Mar., 1882.
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20. Robson, A. W. M.—Cases illustrating the antiseptic treatment of mammary abscess. "Med. Times and Gaz.," Mar. 18, 1882.
21. Money, A.—On the great frequency of cardiac murmurs in the puerperal state: being the result of work at the General Lying-in Hospital. [Roy. Med. and Chir. Soc., London.] "Brit. Med. Jour.," Mar. 4, 1882.
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23. Ball.—De la folie puerpérale. "Tribune Méd.," Mar. 19, 26, 1882.
24. Grenet.—Note sur l'emploi de l'eau très chaude pour combattre l'asphyxie des nouveau-nés. "Jour. de Méd. de Paris," Mar. 18, 1882.
25. Champneys, F. H.—Third communication on artificial respiration in still-born children. Mediastinal emphysema and pneumothorax in connection with tracheotomy; an experimental inquiry. [Roy. Med. and Chir. Soc., London.] "Brit. Med. Jour.," Mar. 4, 1882.
26. Credé.—Die Verhütung der Augenentzündung der Neugeborenen. "Arch. f. Gynäk.," xviii, 3, 1881
27. Lutaud, A.—Déclarations et inhumations des fœtus.—Obligations du médecin et de la sage-femme. [Feuilleton] "Jour. de Méd. de Paris," Mar. 11, 1882.
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4. Zweifel writes concerning *trimethylamin in gaseous cysts of the vagina.* He says that, although these cysts present no clinical interest, much has been written in regard to them since their first observation, some years ago. They were first noticed by him in pregnant women coming to his clinic, and he proved that their contents were trimethylamin. The seat of the cysts is in the interstitial connective tissue. Breisky and others doubted the existence of the substance, and the author then had a careful chemical analysis made, which substantiated his former statement. Other investigators have claimed that the cysts contained nothing but atmospheric air.

7. Dr. Fancourt Barnes has recently made use of *nitrite of amyl in the treatment of hour-glass contraction of the uterus.* The patient upon whom it was tried was a secundipara twenty-two years of age, who had been delivered of a living female child at three o'clock in the morning, and at 10 A. M. the doctor was called on account of retained placenta. The umbilical cord had been separated from it; the contraction was at the os internum and just above, in Bandl's ring, admitting only a finger. The midwife had given the patient a dose of ergot after the birth of the child, which had probably caused the contraction. The patient was allowed to inhale three drops of nitrite of amyl, and the spasm was almost immediately overcome, so that the entire hand could be passed into the uterus. The placenta, which was everywhere adherent, was detached. No hæmorrhage followed, the placenta itself being quite exsanguine. [In Barnes's "Obstetrical Operations" one is directed to use three minims of the nitrite of amyl, together with a drachm of ether, by inhalation, as an antagonist to ergot. Its action is that of a sedative and anæsthetic, without producing unconsciousness.]

12. At Queen Charlotte's Lying-in Hospital Dr. Grigg recently performed *Porro's operation.* It was the patient's second pregnancy, and she had already been in labor sixteen hours when she was admitted to the hospital. She was only forty-two inches in height, and the lower limbs were much deformed by rickets. When she entered she was very feeble, her pulse was 96, her temperature was 99·8° F., her tongue was clean, and her bowels were open. The pains were feeble and infrequent. The conjugate diameter measured at the brim only an inch and a half. Other measurements were as follows: Between the trochanters, 11½ inches; from the symphysis pubis to the right anterior superior spinous process 5½ inches; from the same point to the left anterior superior spinous process, 5½ inches. Sixteen hours after her admission Cæsarean section was performed, and a living child was removed, which was 21½ inches long, and weighed six pounds five ounces. The placenta was next removed without difficulty. The incision was six inches long, extending from the umbilicus to a point half an inch above the pubes. The total quantity of blood lost was about a pint. The uterus was cut away at a point near the internal os, the broad ligaments, Fallopian tubes, and ovaries being also removed. The stump of the uterus was brought to the surface of the body, touched with perchloride of iron, and kept in position by steel needles. Antiseptic dressings were applied, though the entire operation was not done according to Lister. The duration of the operation was one hour. The patient rested well that night, taking nourishment and stimulants as required. The following day, at 2 P. M., she began to sink, and died an hour and a half later. The autopsy revealed an acute septicæmic process, as stated in the title. Practical points suggested to the author by the operation are: Not to extend the incision into the uterus farther, in a downward direction, than a point two inches above the internal os, as the hæmorrhage below this point was more profuse than that above. Placental hæmorrhage is not to be feared, when the operator works rapidly, and cold is used as a styptic. Another means of obviating hæmorrhage is to clamp the broad ligaments immediately after the extraction of the fœtus. The use of the solid perchloride of iron is not without danger, the vessels in this case being stained for two inches beyond the wire ligatures which were thrown around the stump of the cervix. Feeding by the bowel is recommended for such patients. The author thinks the Porro operation offers better chances for the mother than the old Cæsarean section.

17. Dr. Breus says that the case of *inversion and prolapse of the puerperal uterus* which he reports is the first which has been seen in the Vienna midwifery clinic since 1849. This becomes the more remarkable when we realize that, according to Karl Braun's estimate, there have been two hundred and eighty thousand deliveries in that clinic since 1849. The patient was twenty-four years of age, pregnant for the fourth time: her previous labors had been easy, with the exception of the third, in which the placenta was forcibly removed from its uterine attachment. Labor had already begun when the woman presented herself at the clinic, the head presenting in the first position. The pains were severe, and continued from 8 A. M. until 12.15 P. M., when a living female child, weighing 3,800 grammes, was born. Less hæmorrhage followed than is customary immediately after the birth of the child. In fifteen minutes a portion of the placenta appeared at the vulva; at the same time a depression was observed at the fundus uteri, hæmorrhage occurred, and the woman raised herself in order to have the bed clothing under her changed. At that moment, or immediately afterward, the placenta and the uterus suddenly came from the vulva, the abdomen became depressed, and a copious hæmorrhage took place. Though this was quickly checked, there was marked prostration. The placenta was still adherent to the prolapsed and inverted uterus. An attempt was at once made to restore the uterus to its proper position. The firm constriction at the *ring* prevented this, for a time, but it was at length accomplished. The adherent placenta was then removed without much difficulty. Cold injections were given, ergotin was used subcutaneously, and an ice-bladder was laid upon the abdomen. To these measures the uterus responded satisfactorily, and there was no more hæmorrhage. Ether injections were then given (subcutaneously), and the extremities were wrapped in Esmarch's bandages. The patient survived only ten hours. No predisposing cause to this inversion could be ascertained. The post-mortem examination showed that the proportions of the uterus were normal, but the organ was thoroughly anæmic. The tubes and ovaries revealed nothing of any consequence. The insertion of the placenta was upon the anterior uterine wall, beginning at a point two centimetres above the os internum, and extending

to the fundus. The placenta was of full size, and weighed 780 grammes. The navel-string was eccentrically inserted, and was only forty-four centimetres in length. The dimensions of the pelvis were somewhat under the normal. The author states that neither traction upon the cord nor undue pressure had been practiced by the attending midwife. He considers the accident due to a paralysis of the uterus (adopting Rokitansky's theory), especially at the insertion of the placenta, aided by the contracting force of the abdominal muscles when the patient raised herself in the bed.

24. M. Grenet recently read before the Society of Practical Medicine (Paris) a note on the use of *very hot water in the treatment of asphyxia neonatorum.* The mother referred to in the note was a primipara thirty years of age. The labor was severe, and the position the fourth of the head presentations. The forceps was applied, and the head was extracted without remedying the position, the perinæum being torn in the operation. When the child was born, asphyxia was complete; it did not breathe, it was cold, the heart did not pulsate, and the throbbings of the cord were very weak. It was at once plunged into water at a temperature of 45° C., and artificial respiration was instituted by raising the arms and compressing the abdomen. In one minute the skin began to redden, and slight movements of respiration were observed. In two minutes the child began to cry, to breathe, and to move. The subsequent course was that of a perfectly healthy child. The water should be as hot as the hand can bear, and it has even been recommended to use it at as high a temperature as 50° C.

26. Credé's article on *the prevention of ophthalmia neonatorum* is of considerable practical interest. The method which he follows was employed in a series of two hundred cases at the Leipsic lying-in establishment, and a similar method has been followed by Olshausen, Haussmann, and Abegg in another series of four hundred cases. After the funis has been tied and the child's body bathed, the eyes are cleansed with water, at the proper temperature, upon a small rag, and a single drop of a two-per-cent. solution of nitrate of silver is allowed to fall into each eye, from the end of a glass rod. No single one of the children so treated suffered with ophthalmia during the first seven days of life. The success in these cases warranted Credé in urgently recommending a method of treatment so simple to anticipate any trouble which might come. The mothers in these cases represented all conditions as to the genital organs: syphilitic, gonorrhœal, catarrhal, clean, and unclean. Disinfection of these organs was not always possible, since some of the mothers were already in labor when admitted. According to the author's opinion, the nitrate of silver is the most effective and least dangerous substance for application to the eyes. He objects to a stronger solution than the one mentioned. He considers its effect more certain than that of the various solutions of carbolic acid, salicylic acid, thymol, boracic acid, and the rest. Poisoning from the use of carbolic acid has been reported by Zitt, Genser, and Monti. If ophthalmia occurs after the fifth day, it is to be attributed to some other cause than infection from the mother. Coming after this time, it is also apt to take the character of a simple conjunctivitis. If the nitrate of silver were not applied at birth, the application should be made, in the manner described, as soon as the disease appears. It should be repeated subsequently, once a day, as circumstances require, and a small bladder of ice should be laid upon each eye.

GYNÆCOLOGY.

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20. Cushing, C.—Removal of the entire uterus for the cure of cancer of the cervix, with a report of two cases. "Am. Jour. of the Med. Sci.," Apr., 1882.
21. Blackwood, W. R. D.—Electricity in ovarian congestion and neuralgia. "Med. Bull.," Apr., 1882.
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2. Dr. Frank offers a paper on *the operative treatment of incontinence of urine in women.* Retention is possible, he says, because the urethra is surrounded by moderately elastic fibers, and a powerful ring-muscle, the sphincter urethræ. The urethra is largely under the control of the nervous system, and when the nerves of supply, or the sphincter urethræ, are diseased, the power of retention is necessarily impaired. The author confines his remarks to those cases in which the cause of incontinence is purely local, in which the sphincter has lost its elasticity through some injury from without, such as the long-continued pressure of a child's head in parturition. Of Simon's forty-two cases of this nature, four proved incurable. Forcible dilatation

of the urethra may lead to its paralysis, as is clearly shown by Emmet. Constant traction in a direction opposed to that which is natural to the sphincter fibers may also lead to incontinence, as in a moderate degree of prolapse of the uterus and vagina, or in the cicatricial contraction following rupture of the vagina and perinæum. For curing this condition, electricity, injections of strychnia, etc., have been recommended, but these must be uncertain at the best. Jobert recommended the formation of a recto-vaginal fistula, with closure of the vagina and urethra, allowing the sphincter ani to perform the functions of the sphincter urethræ. A case is narrated where Dr. Bardenheuer operated, in which the sphincter ani actually accomplished this function. Experiments upon animals have shown that uniting the ureters to the rectum with sutures is wholly impracticable, diphtheritic inflammation of the mucous membrane of the gut following the operation, also profuse diarrhœa, peritonitis, and pyelo-nephritis. Equally impracticable is the proposition of Rutenberg, to close the urethra and make a permanent vesico-abdominal fistula just above the symphysis. The dangers of such a procedure will at once suggest themselves. Balls of various sorts, for pressure upon the urethra, have been devised, and, for the most part, abandoned as ineffective. The pessary of Schatz is the best of all those instruments which act by pressure, but pressure will only tend to produce atrophy of the muscular fiber. The only effectual means of cure would seem to be by operation, and this was done by the author in a case in which a piece of the posterior wall of the urethra was cut out, the wound closed, and the caliber of the canal narrowed. The wound healed without a fistula, and the woman was able, eventually, to resume her occupation, that of a washerwoman. She is now obliged to pass water only three times during the day, and once or twice during the night.

4. Dr. Atlee reports a case of *fungosities of the bladder cured by scraping with the finger.* The patient was a woman, nineteen years of age, troubled with frequent and painful micturition and hæmaturia when first seen by the author. The urine contained pyoid bodies, epithelium from the bladder, crystals of triple phosphates, and blood-corpuscles. Under an anæsthetic the urethra was dilated with a pair of dressing forceps. The finger was passed into the bladder, and near its fundus a number of fungosities were found, some of them more than half an inch in length, and about one line in thickness. These were carefully scraped away with the end of the finger and the finger-nail, and the patient was thoroughly cured, no recurrence having taken place in the year and a half which have elapsed since the operation. These growths are not villosities, and are similar to those which appear upon the mucous membrane of the uterine canal. They have the same fundamental structure as mucous membrane, and are well supplied with capillary blood-vessels. The literature of bladder troubles contains no similar instance of operation, and the author thinks many cases are allowed to pass unattended to, the patients finally dying from pain and hæmorrhage, when this simple operation would have resulted in a cure. What has been stated in regard to the bladder in disease of this kind is equally true in regard to that of the male.

5. M. Verneuil read a paper before the Société de Chirurgie, at the session of March 8th, on *recto-vulvar fistulæ*, dwelling especially on the causes of failure in treating them. The *résumé* of the paper is in the seven following propositions: 1. The causes of failure to cure by operation are essentially local, the principal ones being the slight thickness of the recto-vaginal tissue at the site of the fistula, which prevents the apposition of sufficiently large portions of vivified tissue, and the contact of fæcal matter, liquid or gaseous, which is difficult to prevent, and which is almost certain to result in non-union by first intention. 2. The expedients used to combat these obstacles—namely, leaving the edges ragged, non-apposition of the lips of the fistula, forced dilatation of the sphincters, and a double series of sutures—do not offer sufficient guaranty for serious recommendation. 3. The freshening of the edges, with an attempt to cure by a single operation, should be abandoned. 4. The spontaneous healing of the parts by granulation, after the removal of the sutures, may take place, and this will not be prevented by contact with the contents of the intestine. 5. This spontaneous cure always demands certain conditions. Since the action of granulation is here carried on in a circular zone, it is necessary that the concentric retraction, in the process of healing, be greater and more rapid in its progress than the radiating or eccentric retraction. Either vivification or cauterization of the fistulous surface will promote the granulating process. 6. Spontaneous cure is possible but not probable. The best plan is to do two operations, the first consisting in the cauterization of the fistulous surface, the second in bringing the granulating sides together by suture when they are in a condition suitable for adhesion. 7. As success is not certain, even after these measures, it will be well to provide for union by concentric retraction and slow adhesion of the surfaces, as in the case where only one operation has been done. As an aid to this end, the rectal mucous membrane should be destroyed to a sufficient extent at the intestinal orifice of the fistula.

9. Dr. Schatz writes of *elastic dilatation of the uterus with the "metranoikter,"* a new instrument of his device. He speaks of the many methods of dilating the uterus for diagnostic or therapeutic purposes, few or none of which have been completely satisfactory. He discards the sponge tent, however carefully prepared, not only on account of its danger, but because of its inefficiency in dilating the canal with uniformity, the failure in the latter respect being most frequently at the os internum. The same fault is to be found with the tupelo and laminaria tents, though to a less degree than with the sponge. The application of a number of tents is also necessary, and may require repetition several times before sufficient dilatation is secured, so that the process becomes expensive, in addition to its other objections. The use of conical sounds and dilators of the various styles for rapid dilatation is painful to the patient and wearisome to the operator, should he obtain an enlargement of the canal sufficient for practical purposes. Discission of the os internum is not, as a rule, good practice, for he thinks the muscular structure will not regain its former integrity. Rapid dilatation not only stretches muscular fiber, but sometimes tears it, and the result will not be good. The rapidity with which a muscle is stretched must bear a proper relation to its physiological function. Striped muscular fiber will bear a greater degree of stretching before it tears than unstriped, and the more time given to the accomplishment of this maximum of tension (within proper limits, of course) the less the danger, and the more completely the object will be attained. This is eminently true in regard to the muscular structure of the uterus. In constructing his instrument the author had all the preceding points in view. The intra-uterine segment is made of steel, nickel-plated, fifty-five millimetres long, and five millimetres thick. It is composed of two perfectly symmetrical blades, and is provided, at the lower end, with a simple, round, strong spring, whose pressure upon the two blades secures the dilatation. There is a small, round button on either end of the spring, and these buttons fit into holes in the application-forceps, the remaining portion of the instrument. [It is impossible to give an intelligible description of this instrument without the diagrams which appear in the original publication.] The instrument, when ready for application, has some resemblance to a uterine sound. Springs with a resisting power of from two to five kilogrammes are used, according to circumstances. When the instrument is fully opened, its points are from forty-five to fifty millimetres apart. The introduction of the instrument need not be difficult where one is accustomed to the use of the uterine sound. It may be passed with the patient upon the back or side, as is most convenient. After its introduction, the forceps portion is removed, and the dilator is allowed to remain twenty-four to thirty-six hours, according as dilatation proceeds slowly or rapidly. Examinations are made as frequently as necessary, the vagina being washed out each time with some disinfecting solution. In removing the instrument, the application-forceps is again adjusted, the blades of the dilator are approximated, and it is removed as one would remove a sound. Wherever dilatation is required it is believed that this is the instrument involving the least danger, especially on account of the small opportunity for septic absorption, since the secretions all flow out between its open blades.

10. Dr. Fehling contributes a paper *on the treatment of stenosis of the cervix uteri.* His definition of this condition states that the lumen of the cervical canal is so altered by anatomical changes of tissue, either at a single point or throughout its entire extent, that it becomes difficult and painful to pass a

sound, even if of small caliber. Its location is most commonly at the os internum. Partial or complete stenosis may be congenital, but is usually acquired. Especially is it caused by long-continued catarrh of the cervical mucous membrane, where hyperplasia of the sub-mucous tissue occurs, and consequent contraction; for example, the catarrh of gonorrhœa, and that following lingering inflammation of the uterus subsequent to parturition. The use of strong applications to the mucous membrane of the cervical canal is also a common cause of stenosis, especially the use of the solid nitrate of silver. Narrowing at the os externum is much less common and significant than at the os internum. It may be discovered with the finger or the speculum. Where the narrowing extends for some distance, the canal is apt to have a twisted course. The passage of the sound is painful, the pain being similar to that at the period, and is apt to cause a discharge of blood and mucus. In some cases it is desirable to dilate the canal with a laminaria tent, to ascertain the exact location of the constriction, and the removal of the tent, unequally expanded as it must be, will occasionally be a matter of some difficulty. The phenomena accompanying stenosis are: first, dysmenorrhœa. This is not a necessary accompaniment, if there be no endometritis, and even then dysmenorrhœa is not present, if the menstrual blood does not clot. Besides dysmenorrhœa, we may have, when endometritis also exists, retention of secretions, and this will lead to hypertrophy of the uterus, enlargement of the uterine cavity, severe menorrhagia, and profuse leucorrhœa. Migraine is also a common symptom, either at the beginning or end of the period. Sterility is not so common an accompaniment of stenosis as is generally believed. According to Kehrer, in at least thirty per cent. of the cases where sterility exists, it is due to azoöspermatism. Cases of stenosis which are complicated by perimetritis, parametritis, or perioöphoritis do not come under consideration, since these difficulties are first to be relieved. The dysmenorrhœa, the chronic metritis, and the endometritis are the conditions which are now mainly under consideration. In curing the stenosis, we have in many cases removed the cause of the dysmenorrhœa, but intra-uterine medication will be required for the other troubles. The author disapproves decidedly of rapid cervical dilatation as a means of treatment. The alternative then presents itself of operation with cutting instruments or with tents. He has found that a combination of discission with tent dilatation yields the most favorable results. To do the cutting operation, he places the patient in Sims's position, disinfects the vagina with a five-per-cent. solution of carbolic acid, fixes the cervix with a tenaculum, and cuts the stenosed surface with a Credé's metrotome. It may be necessary to dilate the canal to a certain extent before the operation, and this is done either with a large sound or with a laminaria tent. The knife is drawn from the uterine cavity downward, across the stenosed portion. A sufficient number of cuts are made, and these should not be more than one half to three quarters of a centimetre in depth, to avoid hæmorrhage and the wounding of important contiguous structures. The os internum being now patulous, if the os externum is also very narrow, the lower portion of the cervix should be divided on either side, for a distance of not more than half a centimetre. A hollow glass plug, with holes in its sides for drainage, is next introduced into the uterine cavity, and fixed in position by a tampon. The patient is kept in bed four days, and the necessary precautions are taken against sepsis. The glass tube is removed on the fifth day, and replaced by a laminaria tent. This is kept in position six or eight hours, and a larger tube is then introduced. In two or three days more, a still larger tube is placed. This dilatation is kept up until the canal is of the proper caliber. It is well to do the operation just after a period, and applications to the uterine mucous membrane can be made after the dilatation, according as is necessary. By following out this method, a recurrence of stenosis will certainly be avoided. The cases for which this treatment is suited are those of elderly unmarried women, sterile married women, and those who have acquired the difficulty as a sequel of parturition.

11. The Obstetrical Society of London recently discussed *Emmet's operation*, the occasion being a paper upon the subject, read by Dr. W. S. Playfair. An editorial referring to the discussion will be found in the "Medical Times and Gazette" of March 25th. The writer calls attention to a statement made by him, some time since, that the importance of lacerations of the cervix uteri was exaggerated by the followers of Emmet. This, he thinks, is now being acknowledged. He quotes from Dr. Goodell's paper, in the "American Journal of Obstetrics" for January, as follows: "Of the beneficial results of the operation of trachelorrhaphy I must now candidly admit that I am not so sanguine as at first. . . . This fact I have learned, that nervous exhaustion and spinal irritation will evoke symptoms which others as well as myself have referred to slight cervical tears, but which are in no wise dependent on these lesions." He (the editorial writer) ridicules the idea that sterility can be caused by lacerations of the cervix. He declares that there is a lack of evidence that the injury causes symptoms of any kind, either disease of the cervix, or impairment of the general health. The way to prove the pathological importance of the injury, and the necessity of repairing it by operation, is by reporting cases, which must be simple, i. e., uncomplicated ones. Dr. Playfair in his paper failed to define the limits of utility of trachelorrhaphy. The writer of the article thinks many of the troubles of women imaginary, and that removing them from the cares, and, it may be, the attentions, of home to a hospital, will of itself tend to do much good, by virtue of the rest and change which they will get.

12. Dr. Skene Keith adds another to the many articles recently published on *the treatment of lacerations of the cervix uteri.* He speaks of trachelorrhaphy as perhaps the most common gynæcological operation performed in the United States at the present time. Two sets of symptoms follow lacerations of the cervix: those caused simply by the tear, and others by the pressure of a mass of hard tissue at the angles. The first condition gives rise to subinvolution and its concomitants, the second to reflex nervous symptoms. Dr. Keith refers courteously to the opportunities afforded him of seeing operations at the Woman's Hospital during the past three months. He also alludes to Dr. Emmet's well-known plan of preparing patients before operating upon them—i. e., curing any cellulitis which may exist by vaginal douches of hot water and applications of iodine and glycerine to the cervix and pelvic roof. The operation is then described as it is habitually done at the Woman's Hospital, and as indicated by Dr. Emmet in his treatise on gynæcology. Dr. Skene's method is next described. He uses what he calls hawk-bill scissors to remove the wedge of cicatricial tissue from the angle, and trims off whatever else may be necessary with Emmet's scissors. He also uses silk sutures instead of silver, and places a tampon of marine lint in the vagina after the operation, retaining it twenty-four hours, and using no vaginal injections. Dr. Keith thinks Skene's method of operating is the easier, but the results of his and Emmet's are alike good. [We are glad to place this article by the side of the one taken from the "Medical Times and Gazette," as it is the result of unbiased observation, and also gives the *symptoms* which the author of that article desired. There is a vast difference between theory and clinical fact, and, as Dr. Emmet has often remarked, whether his explanation of the pathology of this trouble (laceration of the cervix uteri, and its consequences) is correct or not, the patients get well after an operation upon the cervix, and that is the most important thing to be considered.]

14. In regard to *the operative treatment of anteversion of the uterus*, Dr. Mermann refers to the many propositions which have been made for the remedy of uterine flexions, all of which have been, in great measure, discarded as too dangerous or too ineffective. On the other hand, he thinks the operations of Sims and Simon for anteversion should be subjected to further trial, and, possibly, modification, instead of being allowed to sink into oblivion. This plan is preferable, since these operations are not dangerous, nor difficult to perform, and since all non-operative means of treating anteversion are almost void of good results. Whatever instrument of support be used—whether the Graïlly Hewitt pessary or the intra-uterine stem—the difficulty ever remains of bringing the vaginal portion of the cervix into the middle line of the vagina and *retaining* it there. The well-known symptoms attending this condition are next referred to—symptoms due both to mechanical and to nervous causes. There is a reciprocal relation between hypertrophy of the organ and abnormal position, the one frequently leading to the other. When the uterus is raised from its position upon the bladder, it is astonishing to see how great is the relief to the patient. The first patient upon whom the author operated was a married woman twenty-six years of age, who had never been pregnant. She had suffered for years with severe pain, and hysterical accompaniments, and had received all sorts of treatment—pessaries, tents, and repeated replacement with the sound. She also had acute catarrh of the bladder, and excessively painful menstruation. The anteversion was most pronounced; the uterus was greatly enlarged, and the anterior wall of its body much indurated. No adhesions nor inflammatory processes in the uterine ligaments were present. The operation consisted in the denudation of the anterior vaginal wall of mucous membrane, from the utero-vaginal junction to a point sufficiently removed, followed by the corresponding denudation on the anterior face of the cervix, the object being to bring the two raw surfaces into as exact apposition as possible. The lowest point of the denuded surfaces was about four centimetres from the meatus urethræ. Ten silk sutures were passed, to bring the edges into apposition. He calls this a combination of Sims's and Simon's methods. The operation was followed, for several days, by severe pain in the urethra, continued desire to micturate, and spasmodic pain in the bladder. The result was not successful. The patient left the hospital before the wound had entirely healed (it did not heal by first intention), and returned in three weeks, in as bad a condition as ever. The author repeated the operation, making his denuded surfaces somewhat less extensive than in the previous attempt, and obtained union by first intention. The patient was quite relieved after the first few days, the pains during that time being similar to those experienced at the previous trial. A second patient was operated upon according to Sims's plan, and the operation was quite successful. He draws a distinction between Sims's and Simon's operations, in that the former is simply a shortening of the previously hypertrophied anterior vaginal wall; the latter is a transplantation of the anterior lip of the cervix. The author raises a question as to the probability of a permanent cure for anteversion by an operation. He sees an answer in the fact that, by remedying the abnormal position, the patient's chances of impregnation are improved, and the process of uterine involution after parturition will probably leave the organ in a normal position. [This is by no means a new idea. The author fails, too, in providing a remedy for the many unmarried woman who suffer from anteversion, and who can not look forward to relief through utero-gestation.] The operation is not a difficult one, but is more readily performed where the vagina is tolerably capacious. In passing the sutures, care must be taken to avoid going through the mucous membrane of the urethra and the bladder, lest irritation of these organs, or fistula, follow. The best plan is to leave a catheter in the bladder during the operation. The anterior vaginal wall must not be denuded too extensively in the direction of the urethra, as traction upon that organ would give rise to severe pain. It is better to secure the sutures *after* they have all been passed, rather than one at a time, as this results in nicer co-aptation of the edges. If the tension upon the sutures seems too great, it can be relieved by carrying a long suture through the cervix, bringing it out of the vagina, and fastening it upon the body with adhesive plaster, thus drawing the cervix forward as far as is necessary. It may be allowed to remain until the sutures are removed from the wound. After the performance of Simon's operation, or a modification of it, the author thinks that the uterus is in a condition to be benefited by an intra-uterine stem. A stem inserted before the operation would, in many cases, only convert an anteflexed into an anteverted uterus. Sims's operation is commended in well-marked cases of anteversion, and should be performed oftener than it is.

17. Dr. Kocks, in an article on the *total extirpation of the uterus*, adds another to the contributions he has already made to this subject. He alludes to the recent publication of Olshausen ("Berl. klin. Woch.," 1881, Nos. 35, 36) as an indication that the weight of preference now inclines to the vaginal operation. This does not exclude the ventral operation in exceptional cases, and the author now undertakes to defend that method, especially if done as he performs it. The chief point in which his operation differs from Freund's is in the separation of

the bladder and rectum from the uterus before the ligation of the broad ligaments. In two cases narrated, the hæmorrhage was so slight that the ligation was effected with tolerable ease, and the time required was less than is customary in Freund's operation. The first patient died, the second survived. The author's experience, as well as that of other operators, in the matter of recurrence of the malignant growth, inclined him for a time to give up the operation. It seemed possible to him that the vitality of the malignant cells was increased after an operation, or that with improvement in the nutritive functions there followed a more extensive proliferation of the diseased germs. On closer attention, however, he was convinced, at least in his first case, that there was a modified form of the new growth, and that in general the lengthening of the patient's life and promotion of comfort, if only for a few weeks or months, was an object worthy to be attained by the surgeon.

18. Dr. Müller describes *a modification of the operation for total extirpation of the uterus through the vagina.* He remarks that the operation for removal of the uterus *per vaginam* has forced Freund's operation into the background, chiefly because of the unfavorable prognosis and technical difficulties of the latter. The vaginal operation is by no means easy, particularly on account of the danger of wounding the structures contiguous to the anterior cul-de-sac, and the difficulty of turning the uterus back into the posterior cul-de-sac before its removal. The ligation and separation of the broad ligament first operated upon is perhaps the most difficult step of all, and this holds true whether it be ligated *en masse* or in separate sections. Hæmorrhage from the vessels which it contains may occur, however carefully they are supposed to have been secured, under all methods of operation hitherto in vogue. The author proposes, as an improvement, to divide the uterus vertically into two symmetrical portions, after it has been forced backward into the posterior cul-de-sac, or has been drawn downward into the vagina. This being done, the proper ligament of each half of the uterus can be dragged far downward, and the vessels secured with as much ease as, under the old method, in securing the vessels of the ligament last to be operated upon. The separation of the segments of the uterus from their ligaments will not be difficult, as a rule. If the organ be divided exactly in the middle, the hæmorrhage will not be severe, for the large vessels do not extend so far. In any event, the section can be made quickly, and torsion or compression resorted to, until ligatures can be passed. The author is of the opinion that all varieties of operations for extirpation of the uterus for cancer will be confined, in the future, within narrow limits, since the probabilities of relapse are so great. Cases which seem favorable at a preliminary examination are found practically hopeless when more thoroughly examined under an anæsthetic. Even if considered favorable at this time, when the sections are made the disease is often found to extend beyond the reach of the knife. [The author's method of operating bears some resemblance to that recommended by Corradi, a description of which will be found in the December number of this journal, p. 641.]

QUARTERLY REPORT ON GENERAL MEDICINE.

No. X.

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7. The symptom of *roseola* (Rötheln) to which Bloch attaches considerable diagnostic importance, having observed it in every one of thirty-five patients affected with this disease, is swelling and tenderness of the lymphatic glands, especially of the posterior cervical chain. This symptom may occur in the prodromal stage, and may then assist in diagnosticating between this disease and ordinary measles.

8. Dr. Wood and Dr. Formad have presented a very interesting report of their experiments upon the nature of *the contagium of diphtheria.* They believe that both anatomical and clinical considerations point to the pathological identity of diphtheria and membranous croup. They even go farther and assert that all forms of inflammation about the pharynx are the same in kind, and differ only in intensity. When a certain grade of severity is reached, a false membrane is formed, not as the result of anything specific in the inflammatory process, but because any sufficiently intense local irritation is competent to produce a false membrane upon a mucous surface. Micrococci, it is true, are present in greatly increased numbers in diphtheria, and probably act in the transmission of the disease from one person to another [and in the generalization of the disease in the same person]; but their development is to be regarded as dependent upon the local process, and they do not, therefore, precede its appearance. The facts upon which the authors base this belief are these: The micrococci of diphtheria seem absolutely identical with the ordinary micrococci found in all buccal and pharyngeal inflammations, however slight. In all cases of diphtheria the micrococci are found at the seat of the local lesion, but only in the virulent cases are they disseminated through the body and found in the blood. Hence the disease is probably local, in origin at least. Again, the capacity of the buccal micrococci for reproduction by cultivation and their power of exciting systemic disease after inoculation are directly proportional to the intensity of the local inflammation, being least in simple catarrhs, more marked in mild cases of endemic diphtheria, and very pronounced in the malignant, epidemic type of the disease. It is fair, therefore, to suppose that the micrococci owe their virulence to the disease, and not the disease to the micrococci. Accordingly, the sequence of phenomena in a case of diphtheria is probably as follows: First an inflammation of a purely local character is started up; the character of the mucous membrane is thus altered, and it now affords a more suitable medium for the development and reproduction of micrococci; the latter, which have all along existed in a quasi-dormant state on the mucous surface, being placed under these fostering conditions, now become more active, and exert a deleterious influence on the surrounding tissues, thus adding to the intensity of the inflammatory changes; and finally systemic infection takes place and the micrococci, now actively noxious, swarm in the blood, and aid in the generalization of the disease, and also in its transmission to others. For, once outside the body, these vitalized micrococci, falling on a mucous surface, slightly inflamed and thereby rendered fit for their cultivation, aggravate the intensity of the existing inflammatory process and so suffice to change a simple catarrh into a diphtheria. Finally, the authors not only imagine that diphtheria is thus identical with ordinary catarrhal and croupous inflammations, but they suppose that it may also be identical with other septic processes, such as hospital gangrene, etc., the only differences in the diseases being such as can readily be explained by the difference in the situation of the local lesion.

11. The indications in *the treatment of typhoid fever*, as set forth in the discussion here reported, are grouped under five heads, viz.: 1. Ventilation and sunlight. 2. Management of the diet and bowels. 3. Use of stimulants. 4. Use of antipyretics. 5. Disinfection of

the stools. On most of these points the different speakers were practically in agreement, holding that about three fourths of the patients got well on a purely expectant treatment under the influence of good air and surroundings and upon an exclusively milk diet; and that, in the remaining cases which required stimulation, alcohol should be given freely, but not too early in the disease, one observer not giving it before the third week, although another maintained that to forestall heart-weakness it must be administered in the early stages. The general sentiment was that the indication for the administration of stimulants was a rise of the pulse above 120, although a much slower but irregular pulse might also call for such treatment. As to the necessity of disinfection of the stools, all were agreed. There was considerable difference, however, as to the advantage gained by antipyretic treatment and the means by which it could be carried out. Dr. Mason and Dr. Edes strongly advocated the use of cold baths, the former citing numerous European statistics, the latter the results of his own experience. Others, equally basing their faith on personal experience, had seen little result from the use of cold baths, and preferred sponging or sprinkling the surface, or relied upon quinine. The general outcome of the discussion seemed to be that, while cold bathing does reduce the temperature and may ameliorate the symptoms, it does not shorten the course of typhoid fever. Most of the speakers were inclined to favor gentle catharsis at the very outset of the disease, and some even advocated its continuance by means of enemata or mild laxatives throughout the entire course of the fever.

14. Dickson describes a case of *rheumatism with acute cerebral symptoms* (delirium and mania). In this, as in most of the similar cases which have been recorded, there were no evidences of meningitis, and the symptoms were, therefore, attributed to the direct action of the rheumatic blood-poison upon the nerve-centers. In Dickson's case recovery ensued, after a course of combined sedative and stimulant treatment (hypodermic injections of morphine and digitalis).

15. The protean nervous symptoms of dyspepsia, as well as many signs of cerebral affection which have been wrongly ascribed to hysteria, anæmia, etc., are considered by Leven as the expression of a single pathological entity, which he denominates "the *cerebro-gastric disease.*" The dyspeptic element, if not the primary, is at least the principal factor in these cases, and treatment is, therefore, directed chiefly to remedying morbid gastric conditions.

16. *Neuralgia occurring in the course of diabetes* presents, according to Drasche, certain well-defined characteristics, which may be summed up thus: The pain, which exhibits a tendency to symmetrical development on the opposite sides of the body, is agonizing in severity, frequently bears a distinct relation in time of appearance to the ingestion of saccharine food, varies in intensity in direct ratio to the amount of sugar contained in the urine, is very rebellious to ordinary anti neuralgic remedies, but often yields readily to suitable dietetic treatment. A neuralgia having these characteristics should always call for an examination of the urine. Drasche himself has met with two instances of this sort, in one of which there was symmetrical intercostal neuralgia, a form of very rare occurrence.

22. Gray attaches considerable importance to *the diagnostic value of a continuously dilated and abnormally mobile pupil in epilepsy*. In seventy cases, he has observed it in sixty six, and in those in which it was not present its absence was readily explainable. This symptom, therefore, although not pathognomonic, for it occurs in other diseased conditions as well, is of considerable importance in diagnosticating doubtful cases of epilepsy. It is probably to be attributed to morbidly enhanced reflex activity of the nerve-centers concerned in the mechanism of vision.

24. Demange regards *tremor senilis and paralysis agitans* as varieties of the same disease, which he would term "rhythmical oscillatory tremor." The two affections are alike in the frequent absence of any characteristic anatomical lesion peculiar to each and in the essential symptoms, the points of difference being chiefly on the score of intensity and complexity. The author has met with only six examples of tremor senilis out of three hundred old people whom he has examined, and in four of these an hereditary tendency appeared to exist. The onset of this affection is gradual; it usually begins in the head, and goes on to affect the upper limbs, more rarely becoming general. The tremors are not apparent when the part is supported, are intensified by emotion, fatigue, etc., and the separate oscillations are always uniform in rhythm.

25. The treatment which has seemed to Carter to be most successful in cases of *spinal paralysis of adults* is, during the acute stage, the internal administration of ergot and the employment ot counter-irritation (blisters, or Charcot's actual cautery); during the stage of muscular atrophy, strychnine and phosphorus internally, the induced current and massage applied to the muscles, and the constant current along the spinal cord.

28. Pitres has observed two cases of *spontaneous detachment of the nail of the great toe in locomotor ataxia.* In neither case was any traumatic cause traceable, and in both there was a dull, continuous pain in the toe for several weeks prior to the accident. The author regards this as another example of the trophic disturbances which belong to this disease.

29. Fox, reviewing a case of Schultze's, in which a *locomotor ataxia* had lasted for five years, and in which recovery from nearly all the symptoms took place and persisted until death, seven years after, concludes that this and similar instances can not be adduced as evidence of cure of the disease, since in all such cases the pathological lesion has been found unchanged at the autopsy.

30. Hutchinson is of the opinion that *sciatica*, and indeed all lancinating neuralgic pains, are to be referred, not to an irritation proceeding from the nerve filaments themselves, but to an irritation seated in the fibrous sheath of the nerve. He bases his opinion upon the circumstance that true neural irritation —such, for example, as is produced by pressure—is characterized by a fixed and aching, not a lancinating, pain, and, if diffused, is referred, not to the trunk, but to the peripheral branches of the nerve. Moreover, it will be found, on careful observation, that most lancinating pains do not actually follow the course of a nerve with any exactness. As regards sciatica itself, he believes that most cases so called are in reality arthritic affections of the hip joint, due, if acute, to gout; and, if chronic, to a chronic rheumatic arthritis.

31. *Wolff's method of treating writer's cramp*, which, according to the testimony of Vigouroux and others, has been strikingly successful, consists of a carefully graduated series of gymnastic exercises for the affected muscles, of passive motion applied with due moderation, and of vigorous massage.

34. Grancher believes that *examination of those portions of the lung not covered by the effusion in cases of acute and subacute pleurisy* is of great importance, as showing how far morbid conditions of this organ (particularly tuberculosis) are associated with the change in its enveloping membrane. Such examination is best made in the infra-clavicular region. Here tympanitic resonance is frequently obtained, and this has a different significance, according to the character of the other physical signs. Thus: 1. If accompanied by increased vocal fremitus and exaggerated breathing, the underlying lung is probably healthy. 2. If accompanied by increased vocal fremitus and by breathing altered in quality, the pulmonary apex is in a state of congestion, and most probably is tuberculous. 3. If accompanied by diminution of vocal fremitus and breathing (a rare combination), various pathological states of the apex may exist, more especially bronchial compression associated with pulmonary œdema.

35. Sée shows by clinical examples that in *pleurisy* the intensity and character of the fever are not always a sure diagnostic guide in determining the nature of the effusion; a case in which marked hectic had existed for a considerable time being associated with a perfectly clear, non-purulent, fluid exudation. Again, the accentuation of the physical signs is not always in proportion to the quantity of effusion, some cases with total absence of the auscultatory signs presenting only a little fluid, while in others, in which the effusion is considerable, tubular breathing and egophony are obtainable. He notes the presence of amphoric breathing in some cases, and the persistence of this sign after the disappearance of the fluid. He has seen one or two instances in which the pleurisy was consecutive to a gonorrhœa, and these he regards as examples of the same sort of metastasis that occurs in gonorrhœal rheumatism. In dyspnœal attacks occurring in pleurisy he has sometimes seen surprising relief arise from the use of pilocarpine. In general, however, he is a strong advocate of thoracentesis as the only remedy holding out a chance of permanent cure.

39. Patchett observed five cases of *pneumonia* occurring consecutively in members of the same family, and considers that such a succession of cases can not be ascribed to a mere coincidence, but must be explained as the result of actual infection.

42. By *couple-rhythm of the heart* is meant a form of cardiac action in which the beats occur in couples, the two successive beats being separated from the next couple by an interval too short to be ascribed to the suppression of an intermediate beat. Salter has met with three instances of this sort, and Cook has lately seen three more. The latter suggests that this phenomenon may be due to "intermittent spasmodic action of the accelerator nerves of the heart." Its clinical significance is not apparent.

43. Lépine calls attention to an occasional *separation of the auricular and ventricular systoles*, and cites a case in which the occurrence of a diastolic jugular pulsation without tricuspid lesion was probably due to such an independent contraction of the auricle.

46. Arloing, studying *the effects of blood-letting on the circulation*, by an examination of the blood-pressure, the force, frequency, and character of the pulse, and the swiftness of the blood-current before and after bleeding, concludes that moderate abstraction of blood increases the irrigation of the tissues and the processes of assimilation and tissue metamorphosis, because it is accompanied by general capillary dilatation. Copious bleeding, on the other hand, as when a third of all the blood in the body is taken, diminishes the irrigation of the tissues and causes grave disturbances of circulation, with very irregular and frequently retarded action of the heart.

47. Smith maintains that *idiopathic pericarditis*—i. e., one not dependent on traumatism or extension of a contiguous inflammation, and not secondary to constitutional disease—is not so rare as has been imagined, and relates three cases observed by himself which seemed to be of this nature.

48. Féré lays much stress on the influence of renal disease, acute or chronic, in producing acute *heart disease* (whether endocardial or pericardial) *in old men*. Acute and subacute rheumatism and pulmonary disease, which in early life are so frequently complicated by cardiac lesions, are very seldom the starting-point of senile heart disease.

49. Graziadei maintains that a high degree of *cyanosis* does not necessarily indicate an abnormal communication between the arterial and the venous systems, or a defect in the pulmonary circulation, but that it may be due to simple retardation of the peripheral circulation. In support of this view, he adduces one case in which intense cyanosis existed, and in which the only cardiac lesions were found in the aortic and mitral valves, the pulmonary circulation being unobstructed and the auricular septum intact.

54. Flint believes, as the results of experiments upon the cadaver, that *the diagnosis of perforation of the stomach or intestines* sufficient to allow of the escape of gas into the peritoneal cavity may always be inferred from the substitution of a tympanitic percussion note over the region of the liver for the flatness normally present; and when any reason for doubt exists he thinks it perfectly justifiable to insert a trocar and cannula, aspirate any air which may be present, and thus fully establish the diagnosis. He admits, however, that tympanitic distension of the intestines may give the same sign when no perforation has taken place.

59. Guermonprez draws the following conclusions from his study of the indications for the *removal of ascarides from the intestines:* 1. The best vermicide is the chenopodium, the action of santonine, which has been so much lauded, being, not to kill the worm, but to increase the vigor of its movements and so to effect its expulsion. On account of this action santonine may be dangerous, as tending to enhance the reflex disturbances depending upon the movements of the ascarides. 2. Purgatives are of considerable service, either as adjuvants to anthelmintics, or alone. 3. Improvement in hygiene and a change of residence and of the mode of life are often of great influence in effecting a cure, even without the aid of medication.

60. Steven's case was one in which a suppurative *pyelo-nephritis* had developed as the result of the communication of a septic abscess with the ureter. Colonies of micrococci were found in the uriniferous tubules. The fact that foci of suppuration were in relation with some of the colonies and not with others suggested to the author the idea that it is only when the micrococci have attained a certain degree of development that they act as an irritant upon the surrounding tissues.

61. The most interesting point in connection with Coupland's lecture on *renal calculus* is his advocacy of operative interference at an early stage of the trouble as being a comparatively safe procedure, and as preventing the development of destructive changes in the kidney. The details of a case are given in which an operation was successfully performed.

62. Kinnicutt believes that a large number of the cases of *transient albuminuria*, occurring so frequently in children and adolescents otherwise healthy, are due to a transient oxaluria or lithuria, and explains the connection between these two pathological conditions by changes in the glomerular blood supply arising from disturbances of the vaso-motor nervous system, these disturbances themselves being occasioned by the irritation due to the presence of imperfectly oxidized bodies in the circulation.

63. As regards *the aggravation of heart disease by Bright's disease*, Saundby believes that in many cases cardiac valvular lesions may persist for a number of years without giving any evidence of their presence other than the existence of a murmur; but that in these cases the supervention of an attack of Bright's disease will be the signal for the development of the most marked symptoms of cardiac disease. An accidental association of this kind, existing between these two affections, is, he thinks, rather common; and he is inclined to discredit the commonly accepted view that the co existence of renal and cardiac lesions is to be regarded as dependent in all, or even in a majority, of the cases upon a direct causal relation between the two.

QUARTERLY REPORT ON MATERIA MEDICA, THERAPEUTICS, AND TOXICOLOGY.

No. IX.

BY GASPAR GRISWOLD, M.D.

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5. In the course of some remarks on the *treatment of delirium tremens*, delivered before the Cambridge Medical Society (England), Dr. Latham admitted that if sleep were obtained, recovery generally ensued quickly; but he presented the question, Was the induction of sleep a *sine qua non* in treatment? While coma followed in some cases where sleep had not been induced, yet the majority might, and probably would, recover without it; on the whole, Dr. Latham was in favor of active treatment. He divided cases of delirium tremens into three classes: 1. Patients in robust health who had indulged after excitement or distress, chiefly young men. 2. Patients in moderate health who had used stimulants in excess. 3. Those broken down in health and with damaged organs. In the first class he preferred hyoscyamus to bromide of potassium or opium. In the second class opium might be given provided the urine were free from albumen. In the third class opium should be given with great caution, and the free administration of stimulants was important. In all the classes he believed in continuing, for a time at least, alcohol in nearly the accustomed doses.

7. Dr. Prudden has made a series of experiments upon *the action of salicylic acid upon blood-cells, and upon amœboid movements and emigration.* He arrives at the following conclusions: 1. *Frog.* — Salicylic acid in very dilute solutions (1–4000) checks or entirely suppresses emigration of white blood-cells in the bladder and mesentery, without sensibly affecting the caliber of the blood-vessels or the general character of the circulation, or the structure of the blood-cells themselves. It also retards amœboid movements, both in the tissues and on the slide. Somewhat stronger solutions (1–1000) cause stasis in the blood-vessels, death of the white corpuscles, and swelling and decoloration of the red blood-cells in a manner similar to the action of other dilute acids. Solutions of 1–500 cause instantaneous stasis; death of the leucocytes with disintegration of the protoplasm; while in the red cells it produces immediate decomposition of the protoplasm with decoloration, and a separation into morphologically distinct

elements, which may remain permanent in the acid, or undergo subsequent changes. 2. *Man and rabbit.*—Dilute solutions (1–1000 to 1–4000) cause cessation of amœboid movements in the leucocytes, with death of the cell and disintegration of the protoplasm, and in the red cells swelling and decoloration. Strong solutions (1–500) cause instantaneous death of both kinds of cells, with marked morphological changes. *Remarks.*—It will be seen, by a comparison of these results with others made upon carbolic acid, that the latter is less inimical, in solutions of the same percentage strength, to the life and functions of the blood-cells than is salicylic acid. For neither upon the slide nor in the tissues can the movement of the leucocytes be re-established when they have been brought to rest by salicylic acid, and the morphological changes produced by it are much more prompt and marked. It does not, of course, follow from these experiments that the action of salicylic acid in restraining emigration is peculiar to it in virtue of any properties other than those which it possesses in common with such dilute acids as acetic and hydrochloric, for these also in dilute solutions are capable of restraining emigration, although with the exhibition of somewhat different phenomena. The experiments of Dr. Prudden merely show that *salicylic acid does restrain emigration, and is inimical in strong solutions to the life, and in dilute solutions to the activity, of the white blood-cells.* It is probable that some of its favorable effects, when applied as a surgical dressing, are due to its direct action upon the living white blood-cells.

8. In the course of some remarks before the Medical Society of London, Dr. Maclagan expressed some significant views on the subject of *the treatment of acute rheumatism with salicin and the salicylates.* There was nothing more remarkable in the history of practical therapeutics than the unanimity and rapidity with which the salicyl treatment of acute rheumatism had been adopted, and the extent to which it had replaced all other methods of treating that disease. He had addressed letters to fifty-nine hospitals in different parts of England, each containing one hundred beds, asking for a statement of their results in the treatment of rheumatism with the salicyl compounds. He had obtained satisfactory answers from thirty-nine, and now placed the statistics before the meeting; the general results obtained in all these hospitals were satisfactory and in accordance with those got in the metropolitan hospitals. The only hospital statistics which seemed at all to tell against the treatment were those which had been published from the Middlesex Hospital by Dr. Greenhow. It had always seemed to the speaker that Dr. Greenhow's inferences were at variance with his facts. It had been his intention to allude to this, but Dr. Greenhow's views had been so well answered by Dr. Fagge that further discussion of the point was superfluous. He wished especially to allude to the question whether the action of the salicyl compounds in rheumatism was *antipyretic* merely, or essentially *anti-rheumatic.* If an antipyretic action merely was required to cure rheumatism, we could accomplish more with cold applications and quinia, which were admitted to be more efficient antipyretics than the salicyls. But cold applications and quinia did not shorten the course of rheumatism as the salicyls did. Were the salicyls only antipyretic in their action, they would act as well in other febrile diseases as in rheumatism; but rheumatism was the only ailment in which they exercised a peculiarly curative influence. Fever was not the only feature of rheumatism; much more essential was the inflammation of the fibrous tissues about the joints. This was the characteristic of the disease—it was its arrest which was essential to a cure—and it was in arresting this that the salicyls exercised their peculiar control over the affection. A remedy which arrested this inflammation would suffice to arrest the whole course of the disease. That was what the salicyls did; they put a stop to the inflammation of the fibrous textures and all the symptoms, local and general, to which that inflammation gave rise. Such action was more fitly described as antirheumatic than as antipyretic, for the febrile disturbance was secondary to the inflammation. Acute rheumatism Dr. Maclagan regarded as a malarial fever; the rheumatic poison as a malaria; and malaria to consist of minute organisms. The salicyls acted, not upon the system, but by destroying these organisms. During the course of this action the physiological effects of the salicyl compounds—that is, the evidences of their action on the system—were frequently

manifested; but these effects, so far from being essential, were looked upon with regret. We did not wish them, and were very sorry when they appeared; the curative effects were obtained independently of any evidences of the action of the remedy other than a mitigation of symptoms. This was evidence that their action was on the rheumatic poison and not upon the system, as antipyretic or otherwise. Dr. Maclagan advised full doses in order to entirely kill the poison. The larger the quantity that could be thrown into the system at a given time, the more rapid the destruction of the poison. He preferred salicin to salicylate of sodium; it was quite as efficacious, and had no deleterious effects. Dr. Maclagan believed fully in the cardiac depression said to follow the administration of salicylate of sodium. Salicin should be given for some time after the subsidence of symptoms, to prevent a relapse. The term relapse was improperly used in this connection. Rheumatism was malaria. Malaria might be remittent or intermittent. Relapses in rheumatism, so-called, were merely features of an attack essentially intermittent. Rheumatism was remittent or intermittent, just like other malaria. So-called relapses occurred more frequently under the old alkaline treatment. Hyperpyrexia was no essential part of the rheumatic process. It was a rare complication, and was to be regarded as a peculiarity of the individual in whom it occurred, rather than as essentially pertaining to acute rheumatism. All evidence showed that it was not benefited by the salicyl compounds. They were quite inoperative in it. The external application of cold was the remedy for this condition. [The views of Dr. Maclagan with reference to the subject under discussion are of especial interest, coming from its father and greatest partisan. He believes that the action of the salicyls is specific. He believes that rheumatism is malaria, thereby attacking the dogma of heredity which is commonly considered so well established. He does not believe in Prout's theory of excess of lactic-acid; is not influenced by the facts that Richardson caused endocarditis and joint inflammation in dogs by means of intra-peritoneal injections of lactic acid, and that Garrod reported cases of rheumatism caused by the heroic lactic-acid treatment of diabetes. He does not believe that the exclusive occurrence of rheumatic endocarditis on the left side of the heart is explained by the fact that lactic acid is formed in the lungs from sugar, and strikes fresh upon the lining of the left heart. We hear of men who do not believe that scarlet fever is contagious, nor that vaccination is a protection against small-pox, but neither of these views seems so strange as one that holds rheumatism to be malaria! Dr. Maclagan still holds that salicin is as powerful against rheumatism as sodium salicylate is; the best authorities, in this city, at least, certainly believe the contrary. Dr. Maclagan does not believe that the salicyl compounds are efficacious in rheumatic hyperpyrexia—he calls them "altogether inoperative" in this connection. It is the experience of all observers in this country, almost without exception, that it is in those cases of rheumatism which are characterized by the greatest acuteness and highest temperature that the salicyls achieve their most signal triumphs. It is in the subacute cases, in which the temperature does not rise above 101° or 102°, that the salicyls oftenest prove "inoperative."]

9. Dr. W. H. Broadbent stated before the London Medical Society, with reference to *the treatment of acute rheumatism*, that it was his experience that when salicylic compounds failed to control the disease at once nothing was gained by their continued administration. Also that salicylic compounds certainly had no influence upon the course of pericarditis or endocarditis; and not only was the lesion itself unaffected, but when one had to deal with cardiac inflammations the fever failed to subside under the salicylates. The only cases of hyperpyrexia that would not yield to salicylates, in his experience, were complicated with heart lesions. He did not believe that the tendency to cardiac complication was increased by the salicyl treatment; indeed, he thought, the termination of the disease being hastened by the salicyl treatment, the liability to cardiac complication was in some degree diminished in that way—but in that way only. He attributed the temporary feebleness of the pulse in many cases under the treatment, not to the depressing influence of the salicyls upon the heart, but to the sudden and rapid fall of temperature. The same was observed during the crisis in cases of pneumonia. He preferred the salicyl-

ate of sodium, twenty grains hourly for six doses, and this repeated on the second day. For some days afterward the same dose three times. He considered marked toxic symptoms to be generally due to impurities in the drug—perhaps carbolic acid. He thought the frequency of relapses under the new treatment was principally due to the fact that a rapid and easy recovery from the first attack under the salicyl treatment encouraged the patient to be imprudent.

10. Dr. Coupland gives an analysis of eighty-four cases of *articular rheumatism, acute and subacute, treated with salicylate of sodium*, with more or less rigor. The statistics are from Middlesex Hospital, from which were published the statistics of Dr. Finlay and Mr. Lucas in 1879, and those of Dr. Greenhow in 1880. The doses were not heroic. In contrast with the remark of Dr. Maclagan that the drug was rapidly eliminated and required large dosage and rapid renewal, the author has notes of cases where it was found in the urine three days after its administration had been discontinued. Moreover, the toxic effects are not produced after the first dose, but after several doses have allowed the drug to act with cumulative effect. Notwithstanding this persistence of effect, the author continued the administration long after the subsidence of symptoms, in order to prevent relapses. In the large majority of the cases the age was between fifteen and thirty; it was the first or second attack, and the treatment was commenced during the first week of the disease. Special analysis was conducted under the following heads: 1. *Duration of pyrexia.*—The author believes that the salicylates achieve their greatest triumph in controlling temperature. The average duration of pyrexia in the cases analyzed by the author was such that the temperature became normal on the fifth day after the administration of the salicylate was commenced. 2. *Duration of joint affection and pains.*—The author finds that pain, although markedly influenced, generally outlasts pyrexia by twenty-four hours. In 39 out of 80 cases pain ceased in four days, in 53 in six days. In a few subacute cases pain was long-continued and persistent. The average termination of pain was on the sixth day after treatment was commenced. 3. *Relapses:* (*a*) *Relapse of pyrexia* occurred in thirty-five per cent. In eight of these it was not attended with a return of joint pain, but was due to pericarditis, amygdalitis, etc. Some of these relapses occurred during the continued administration of the salicylate, others after its discontinuance. (*b*) *Relapse of pain* occurred in thirty-five per cent., in nine cases being unattended with pyrexia. Some of these relapses also occurred during the continuance of treatment. The deduction of the author is that the continuance of treatment diminishes the tendency to relapse, either of pyrexia or of pain, but does not altogether prevent it. The author believes that relapses are often brought on by a too early return to solid diet, and omission of other precautions, to which the rapid disappearance of symptoms in many cases is conducive. 4. *Duration of stay in hospital.*—As a rule, patients are walking about and on full diet a week before discharge. The average duration in mild cases was 25 days, in severe cases 49 days. 5. *Total duration from onset of symptoms*, including period before admission and without treatment, averages 40 days. 6. *Frequency of pericarditis, endocardial murmurs, etc.*—Pericarditis occurred in 11 cases. Apex systolic bruits in 21 cases on admission, altered or added to by other murmurs in 5. Apex systolic bruits in 10 cases after admission. Of the whole 31 bruits, 6 disappeared before discharge. Presystolic bruits in 7 cases; altered or added to in 2. Murmurs denoting both mitral regurgitation and aortic obstruction were noted in 5 and were altered in 3. The author does not feel able to differentiate organic from hæmic or functional murmurs in these cases with sufficient certainty to subdivide statistics. 7. *Other complications.*—Pneumonia in 2, pleurisy in 2, bronchitis in 6, amygdalitis in 8. 8. *Toxic effects, or "salicylism."*—Vertigo in 2, headache in 8, tinnitus in 10, deafness in 11,* delirium in 2, vomiting in 2, retention of urine in 3 (in 1 followed by cystitis), albuminuria in only 1 case, this in marked contrast with results furnished by Dr. Isambard Owen. The author has not observed in his cases the cardiac depression described as often attending the use of the salicylates. *Con-*

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* This statement speaks for the smallness of the dose employed, since most practitioners in this country push the drug until deafness occurs. Under the latter circumstances it would occur in almost every case.

clusions.—1. That in the majority of cases salicylate of sodium rapidly reduces the pyrexia and articular pain of acute articular rheumatism. 2. That, unless the administration be long continued, relapses of both pyrexia and joint pain occur. 3. That such relapses are not *wholly* prevented from occurring by continuance of the drug, but that in many cases they are due to a neglect of proper precaution in matters of diet and rest, owing to the freedom from acute symptoms enjoyed by the patient. 4. That the best method of administering it is in regulated doses, gradually diminished as to both amount and frequency. 5. That no definite influence upon cardiac or other complications can be observed, and that both pericarditis and endocarditis may develop during its administration. 6. That the toxic effects described are serious in proportion to the largeness of the dose, and, perhaps, to impurity of the drug; but a few seem very tolerant of it. Its alleged depressing action upon the heart remains to be proved by experiment, and may be due to the sodium. 7. Salicylate of sodium is certainly *antipyretic*, and to a certain degree *anti-rheumatic*. That its employment does not appreciably diminish the time necessary to keep the patient at rest, but that the immense relief given by its use in the abatement of fever and pain—a relief not to be estimated by statistics—renders it by far the most valuable remedy for the disease at present known.

11. Dr. Gilbart-Smith, in some remarks before the London Medical Society, expressed his views as follows with reference to *cardiac complications in acute rheumatism before and since the introduction of the salicyl compounds:* The chief danger in rheumatism is that of cardiac complication, and it is of the first importance to ascertain if there is any evidence afforded by hospital statistics to show that the cardiac complications of acute rheumatism have been in any way affected by the introduction of the salicyls. If the salicyls actually *cure* rheumatism, as is confidently affirmed by Maclagan and others, it is reasonably to be expected that the cardiac inflammations which result from the same general cause should be mitigated, if not altogether prevented. Perhaps, in connection with this apparently just expectation, it should be taken into consideration that the joints are kept at rest, an advantage impossible for the heart. The tendency for the heart to become inflamed is greater during the first days of the fever, and, should it escape early in the disease, there is each day a lessening tendency to its implication. Most patients, therefore, who have cardiac complication are suffering from it already on admission to the hospital; however, it is not disputed that a certain amount of cardiac complication is developed after the admission of the patients to the hospital, and, if the action of the salicyls is essentially *anti rheumatic*, we should expect to find the number of cases of the latter class diminishing under the new treatment. The following statistics are significant in this connection: In 1,727 cases treated previous to the introduction of the salicyls, heart complication occurred in 54 per cent. In 1,748 cases treated subsequent to the introduction of the salicyl treatment, the heart was affected in 68 per cent. In 629 cases of primary attacks of acute rheumatism treated subsequent to the introduction of the salicyls, cardiac complication occurred in 60 per cent. In 583 cases treated exclusively with salicyls, cardiac complication occurred in 68 per cent. From a consideration of these statistics Dr. Gilbart-Smith concludes that, notwithstanding our expectations, based on the good effects of the salicyls in several of the marked features of rheumatic fever, there is no evidence, so far as hospital statistics are concerned, to show that the introduction of the salicyl treatment has led to any diminution in the amount of cardiac complication in acute rheumatism.

12. Dr. Joseph W. Hunt details his experience in *the treatment of acute amygdalitis with salicylate of sodium*, to which his attention was first directed by the intimate connection which exists between rheumatism and many cases of amygdalitis. The results have been most favorable; in many cases the remedy acted almost as a specific. If suppuration has not already commenced, decided relief is experienced in the first twenty-four hours. When he has been able to commence the treatment in time, not a single case has gone on to suppuration. In many cases where, from the brawny and infiltrated condition of the tonsils and adjacent parts, it seemed unavoidable that suppuration should ensue, it has been prevented by the treatment. The doses used have been fifteen grains every four hours for an adult, ten grains every four hours for a child. The author does not hesitate to confidently affirm that the salicylate of sodium is the best remedy in acute amygdalitis.

49. Dr. Park advises the application of *linimentum crotonis* to the chest at once in cases of severe *acute bronchitis* with a sense of constriction and great dyspnœa. He has often used the treatment in his own case, and says that the relief is surprising and immediate; no other remedy compares with it in efficiency and rapidity of action. If properly applied, the result is not painful or troublesome; it should be applied evenly, and not too freely, to the chest with a piece of cotton-wool; the quantity should not be sufficient to permit any of the fluid to trickle to other parts. A fresh piece of cotton-wool should at once be placed over the surface treated, and not removed until the inflammation excited is at an end. There is no danger in going out and attending to business while the derivative action is in progress.

50. Dr. Green highly recommends the use of *nitro-glycerine in certain forms of heart disease*, especially in *angina pectoris*, and in weak, dilated, fatty hearts. This remedy, principally recommended by Dr. Murrell, is similar to nitrite of amyl in its effects, which, however, come on more slowly, and are more persistent in the case of nitro-glycerine. It is used in a one-per-cent. solution in alcohol; a drop, or even a quarter of a drop, is a dose, taken upon the tongue or in water. The peripheral arterioles are dilated and the surface flushed. In some cases attacks of *angina pectoris* may be kept off by the continued administration of the remedy in small doses every three hours. Sudden congestions of the lungs in cardiac disease are markedly relieved by the determination to the surface which follows the use of this remedy. It is beneficial in cases of cardiac asthma, and in the bronchitis which attends mitral trouble.

51. At the *séance* of the Société de Biologie of February 25th, M. Rabuteau presented a new substance—*an artificial curare*—a white salt, of bitter taste, soluble in water and alcohol, the physiological properties of which exactly correspond with those of curare (woorara, ticunas poison, etc). Chemically, the new substance acts like iodide of potassium, turning starch blue; physiologically, the experiment of Bernard upon the frog can be performed with it as with the usual curare—viz., the peripheral motor nerves are paralyzed, the proper muscular excitability being preserved. Chemically, the new substance may be explained as follows: Iodide of ammonium is by formula NH_4I. Substitute in this formula an atom of antimony (Sb.) for the N, replace one atom of H by one of methyl (CH_3), and the other three atoms of H by three of ethyl (C_2H_5), and we have the new substance. M. Rabuteau calls it *iodide of methyltriethylstibonium!*

52. Dr. Lowe decribes a case *of fatal erethismus from mercurial inunction.* The patient was a woman of thirty-five, of dissolute habits. She had been treated for five days as a case of bronchitis and cardiac weakness. When seen by the author she looked wretchedly, and appeared twenty years older than she really was. She had the mercurial tremor in every limb; her respiration was gasping, with ineffectual cough. Her pulse was feeble, irregular, and too rapid to be counted; mercurial salivation and fœtor of the breath were well marked. She suffered from thirst; there were constant vomiting and diarrhœa, both discharges containing blood-streaked mucus. The urine was scanty, albuminous, and contained blood. As time went on no urine was voided: the power of speech was lost sixteen hours before death. Warm milk and brandy were prescribed at once, accompanied with a mixture of potassic chlorate, opium, and bark. For some hours there was relief and even improvement, when suddenly she started from the bed and fell dead. And now for the inadvertence which gave rise to the case described. The poor woman's scalp was swarming with lice, and might be called one complete sore, fissured and abraded at every point. It was to get rid of these lice that she had obtained *unguentum hydrargyri* from the druggist. It was applied in the most incautious manner for some days, so that extensive absorption resulted. It was too late, when the patient was seen by the author, to attempt anything like systematic treatment. The case is interesting in that the poison was introduced in a way that might easily escape the notice of the physician, and that tremor was conspicuous; the latter is rare, except in cases where the mercury is absorbed in the form of vapor, as among mirror manufacturers. It is often amusing to see how freely lead is administered in diarrhœa, and locally applied to the scalp in skin diseases, when we are so alarmed at the possible presence of small quantities of it in drinking water or hair dyes. So also is it curious how frequently ignorant people buy what they call "*anguintum*," to use it without advice or precaution, and entirely oblivious of the danger to which they are exposed.

57. M. Gibier describes an apparatus used in Italy for some years, and there called an *enteroclismo;* the object of it is to inject fluids into the large intestine in a manner to overcome the resistance of the ileo-cæcal valve and enter the small intestine. The apparatus consists of a receptacle containing several quarts, and capable of being suspended to the ceiling; this is connected by means of a long tube with a cannula, which can be introduced at the anus. Various fluids, some of them antiseptic, have been injected with this apparatus. The author gives bibliography detailing the treatment in this manner of numerous cases of intestinal occlusion, strangulated hernia, dysentery, ulcers, etc. No one of the authors of these papers seems to doubt that his injection passed the ileo-cæcal valve, and some even mention that their patients vomited portions of the substance injected. The author, in a conservative spirit, and in the face of this evidence, performed two experiments upon the cadaver to investigate the feasibility of the operation. The first experiment was made upon the cadaver of a patient who had died of phthisis, a young man of thirty. The pressure of the fluid was gradually increased until it was much greater than that employed by any of the Italian physicians; the cadaver was placed with dependent head and pelvis raised, and kept so for upward of twelve minutes. In spite of these efforts, the injection could not be made to go beyond the ileo-cæcal valve. A second experiment was made by removing the whole abdominal contents of a patient without intestinal lesion very carefully, from the anus to the stomach. The cannula was then tied firmly in the rectum, and the process studiously watched. In spite of the pressure of the fluid being raised until the large intestine seemed on the point of bursting, no fluid passed the valve. The author considers that, although the anatomical peculiarities of individuals may favor the operation, its feasibility in a general sense must be considered very questionable.

QUARTERLY REPORT ON DERMATOLOGY, SYPHILOGRAPHY, AND GENITO-URINARY DISEASES.

No. X.

By EDWARD BENNET BRONSON, M.D.

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7. Cornil gives some additional facts with regard to *the bacteria of lepra*, first discovered by Hansen and afterward described by himself, Neisser, Hillairet, and Gaucher. These facts relate more particularly to the situations in which the bacteria are found, and their relations to the tissue ele-

ments. In the tubercles of the skin, it is stated, the germs are exceedingly minute, being barely visible distinctly with a magnifying power of three hundred diameters. They are best seen with an immersion lens magnifying from five to eight hundred diameters. They are found in great numbers in the large cells described by Virchow, which abound in the tubercles of the skin as well as in the neoplastic growths occurring elsewhere. In parenchymatous organs of a softer structure than the skin, such as the liver, or in such glands as normally contain cavities or canals with fluid contents—as, for example, in the testicle—the bacteria attain a greater size. This is supposed to be owing to the fact that in such situations they are not compressed and hampered in their growth—"*peuvent se développer tout à leur aise.*" They are found existing free in the tubules of the testicle, and are of five or six times the size of those found in the skin. They have either a rectilinear or an incurvated form, with slightly rounded extremities. In length they vary from ten to fifteen one thousandths of a millimetre, and in thickness from one half to one thousandth of a millimetre. There are vacuoles in the interior of the fungus. In the fibrous tissues, in the sclerotic, the cornea, the laminæ of the neurilemma, the deep cellular tissue of the derma, etc., the bacteria are interposed between the fibers and the laminæ, in the form of little filaments or chains. In the protoplasma of cells, and in the detritus accumulated in the tubules of the testicle or in the blood-vessels, masses of free spores are met with. When the tissues have become so infiltrated as to threaten mortification, or when upon the skin or mucous membranes ulceration is about to take place, the capillary blood-vessels are found filled with bacterial infarctions.

9. Gibier writes of an *acute febrile pemphigus* which, he claims, is an infectious disease, depending upon the development of bacteria in the body. He finds the bacteria both in the fluid contents of the bullæ and in the urine. By cultivation they may be greatly multiplied. When fully grown they appear in the form of little chains, consisting of from two to twenty members. When young they have the appearance of minute, rounded granules, either irregularly dispersed over the field or collected in little groups. They were not found in the blood. It is surmised that they may circulate only in the lymph vessels. It was not found possible to inoculate the lower animals with the disease. A single case of this form of pemphigus is described, affecting a young man seventeen years of age. The disease rapidly assumed a malignant form, with typhoidal symptoms, and the patient died of asthenia in about two weeks.

12. *The small-pustular scrofuloderm*, which is alluded to by Duhring in his "Treatise on Skin Diseases," under the head of the Scrofulodermata, as a "formation of pin-head and small split-pea sized, disseminated, yellowish, flat pustules, with usually a raised, violaceous areola," is by the same writer described more fully in the present article. Three cases are given. In their general features they corresponded to each other very closely. The subjects of the disease in two of the cases were decidedly scrofulous; in the third, evidence of struma was vague. The eruption occurred most commonly about the extremities, but also upon the face, abdomen, and back. The lesion began with a pinkish or purplish papule, which after a time suppurated in the center, and finally a depressed cicatrix or pit was formed. The suppuration tended to extend in depth rather than in circumference, so that when the little pustule was opened a crater-like cavity was left. A slight "umbilization" followed suppuration, and the surface of the pustule was somewhat below the level of the surrounding skin. The pustule is at first covered by a thick cuticle, which after a few days dries and becomes a hard, "grayish, yellowish, or brownish crust." This separates at the edges, and finally comes away. The surrounding infiltration, together with the violaceous hue, gradually disappears, and at the site of pustulation a white, sharply defined "pitted" scar, "with irregular border," is formed. Some of the lesions were examined microscopically, and showed simply the ordinary appearances of a chronic inflammation. No particular stratum was especially affected, and "the sebaceous glands were not involved." [We are unable to avoid the conjecture that this affection which Duhring has so well described has been partially described before, but classed under some of the forms of acne. The diseases known in Vienna as *acne frontalis* and *acne ca-*

checticorum are both marked by the absence of comedones. Though the former of these diseases occurs (according to the descriptions given of it) only upon the face, the lesions would seem to bear a striking resemblance to those of the disease which Duhring has described. According to Hebra and Kaposi, the center of a papule is occupied by a disc-shaped crust, which the periphery of the papule circumscribes in the form of an elevated border or wall (*limbus*). After the crust has separated, the space which it occupied is converted into a depressed scar ("Lehrbuch der Hautkrankheiten," Hebra u. Kaposi, 1872, p. 591). It is, moreover, not at all certain that either this disease or the *acne cachecticorum* has anything specially to do with the sebaceous structures.]

18. Underhill describes *the leprosy of Louisiana* as he has observed it. Concerning the etiology, he believes that, while the disease is generally due to hereditary transmission, the heredity is more nearly allied to that of such diathetic diseases as carcinoma and tubercle than it is to that of syphilis. He states that seventy-five per cent. of the children of lepers "die either directly of the disease, or at their death present some of its characteristics or symptoms." He also intimates that transmission from the mother is more common than from the father. He considers "propagation from this source as almost unfailing." Moreover, he asserts that "females are more prone to hereditary influence than men, and exhibit symptoms of its acquirement at an earlier date, generally about the age of puberty." The only other etiological factors to which he attaches importance are: "Filth and uncleanness," which may "increase the liability to and accelerate the progress of the disease," and the absence from the diet "of certain principles, such as nitrogen, oxygen, and potassium," which is considered as a "negative cause of its production." In speaking of the symptoms of the disease, he observes that the leprosy of Louisiana does not admit of the division into the varieties "tubercular" and "anæsthetic," as observed in other countries. The symptoms of the two varieties are commingled in one subject. The writer divides them into tubercular and nervous symptoms. The first appearances consist of "circumscribed livid blotches or maculæ" upon the face, neck, and extremities. These are slightly raised above the surrounding surface. They afterward subside, but reappear, their livid appearance being replaced by pigmentary stains of a dull bluish color, which "eventually turns into a peculiar reddish brown, and the bronze color of the leper is permanently established." The tubercular elevations are developed in these discolored patches. They occur first, usually, on the feet or hands. Finally the tubercles ulcerate and heal, with the production of hard, white cicatrices. It is stated that while ulceration of the nodules is in progress the patient "loses his anxious and depressed appearance"; the constitutional disturbances abate, and there is apparently a general improvement in his condition. So soon as the ulcerations heal, the patient relapses into his former state. Leprous deposits of a similar character to the tubercles of the skin occur in all the interior organs of the body, with the exception of "the lungs and the pancreas." The nervous symptoms consist of "peculiar sensations of warmth, burning, and itching," with "pain and tenderness" in the hands and feet. As these sensations "become more extended in the direction of the nerve-trunk, loss of sensation is felt at their primary seat, and thus we have gradual and progressive anæsthesia." This occurs more particularly in "the parts upon which the tubercles appear, ... especially along the course of the ulnar and the anterior and posterior tibial nerves." Associated with these symptoms are atrophy of the muscles, "a flabby, shrunken condition of the skin," and nodules upon the mucous membrane which readily ulcerate. Death may occur from "exhaustion, blood poisoning, asphyxia, diarrhœa, or dysentery." From the first two causes it may occur "in any stage of the disease after nodulation sets in." "Death from asphyxia is most common in women, and occurs late in the career of the disease." It is due to accumulation of leprous deposits in the air-passages. "Death from diarrhœa or dysentery is most common among men, occurring generally at a late date. Mild cases generally continue about twenty years; severe ones from nine to twelve years."

21. Cauty describes *a singular sebaceous anomaly* occurring in a boy. Over certain regions there was a partial protrusion of comedones, which assumed the appearance of bristles. They occurred chiefly on the upper part of the back, over both shoulders, down the outside of the arms, and upon the nates, averaging one hundred to the square inch. They were brownish or yellowish in color. When the hand was passed over them, the sensation was "exactly like that of touching a coarse brush." They were firmly fixed in the skin, requiring "more force to remove them than to extract a well-rooted hair." When removed, they left a small central depression surrounded by a circle of torn epithelium. Their "full length" was "$\frac{3}{32}$ of an inch." Near the edges of a patch they became gradually shorter till they were level with the skin. The skin about them was raised in polygonal flat discs, gradually shading off into the normal skin. It is stated that the bristles contained "a few immature hairs." The affection had existed over three months. It readily disappeared under treatment by oily applications.

28. Martin's case of *generalized vaccinia* was very remarkable. A mother with a nursing infant was revaccinated. The child was not vaccinated, on account of an eczematous affection which it had. Upon the mother's arm the virus "took moderately." On the sixteenth day the child became fretful and feverish, and upon the arms there appeared a number of "little red pimples." Three days after, more had appeared (to the number of four hundred), and had become circular, umbilicated vesicles. They occurred especially where the eczema had been. They were found in greatest abundance on the forearms, ankles, legs, and left cheek. Here and there they were confluent. The appearance was very like that of "variola on the fifth and sixth day," but the vesicles were rather more "perfectly circular." A considerable number of them had been torn open, exhibiting the usual cellular structure of the vaccine vesicle. There was an areola of moderate extent surrounding each one. The vesicles were rather small for vaccine vesicles, the largest being "somewhat larger than the vesicles of small-pox." Desiccation took place rapidly, and left no cicatrices. While the vesicles were at their height, lymph was taken from them, and with it a young heifer was successfully inoculated. From the heifer four persons were vaccinated—all successfully. The variation of the vesicles in the child from those of ordinary vaccinia, in their smallness of size, their rapidity of desiccation, and the absence of cicatrization, is supposed by the writer to be owing to the fact that the vaccine process was distributed among many different points, instead of the full force of the disease being confined to two or three, as is the case in common vaccinia.

29. Purdon asserts that *general pruritus of the skin* "is due, as a rule, to derangement of the liver," for which an hepatic stimulant is indicated. For this purpose he recommends "ragweed" (Succus senecionis Jacobææ: Dose ʒj – ℥j, once, in the morning). "Pruritus scroti is always due to stricture," he says. [Are there Otisian Jesuits in England?]

31. Fox, in a very conservative article, describes his *treatment of port-wine mark by electrolysis.* While convinced of the advantages of the measure in appropriate cases, he refrains from urging them in all forms of the disease. He considers the method best adapted to the spots of a deep purplish color. For the lighter forms simpler measures are preferable. He commonly uses electrodes consisting of a number of needles fixed in a metallic disc, their points being all in one plane. Where it is desirable to reach deeper vessels the single needle is used, penetrating the skin obliquely so as to attack a number of capillary loops at one time. Where there is a very decided thickening the writer prefers to inject the tissues with a small quantity of pure carbolic acid. Occasionally the needles caused slight ulcerations, which were followed by little "vascular nodules" having a somewhat keloidal appearance. After a time they entirely disappeared. It is not claimed that by electrolysis the skin may be completely restored to its normal appearance, but only that the disfigurement may be made much less unsightly by turning the deep purple shade into a lighter tint. The needle-pricks leave minute white spots that are scarcely noticeable.

32. Thin, in an article in the "British Medical Journal" some time ago (September 18, 1880), recommended the use of *boracic acid in the treatment of bromidrosis.* His plan was to have the patient wear stockings and cork soles that had been soaked in a saturated solution of this disinfectant. After a prolonged trial of the remedy he is able to speak still more strongly in its favor. He claims that by it not only may the offensive odor be corrected, but the profuse sweating—the hyperidrosis—which is always present, is remedied. He thinks that the latter effect is due to some change which the acid induces in the epidermis of the feet, the cuticle becoming hard and horny under its use. In addition to a solution of the drug he also employs it in an ointment. Some difficulty was experienced at first in making a smooth ointment with the crystals of boracic acid. It was overcome, however, by first dissolving the crystals in glycerine, and then incorporating the solution into an ointment with wax and almond oil.

28. Unna proposes a *new treatment for lichen ruber* which he has found attended with better results than the ordinary treatment with arsenic. An ointment consisting of carbolic acid (20), corrosive chloride of mercury (0·5–1) and benzoated zinc ointment (500), is rubbed over the whole body each morning and evening, and the patient meanwhile is kept wrapped in woolen blankets. The duration of the treatment depended upon the length of time the disease had lasted. Two cases (the writer reports six altogether), that had lasted but eight days, were healed in eight days. Two others, of from one to one and a half month's duration, required two weeks' treatment; while three weeks were necessary for two others that had lasted, respectively, six months and one year. The effects, therefore, were much more rapid than in the treatment by arsenic, which seldom requires less than six weeks to effect any marked change in the disease, and a much longer period usually to effect a cure. No serious toxic effects were produced by the inunctions, though it is stated that generally the patients' urine was affected on the second day (*Karbolurin*), and, on the third or fourth, there was a little feeling of weakness, which soon passed away. The relief from the discomfort caused by the disease (itching, etc.) was almost immediate. It was necessary to guard against gingivitis by the use of mouth washes, by means of which, however, it could be avoided.

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1. Dr. White's address before the Philadelphia County Medical Society on *the prevention of syphilis* embodies a strong plea in favor of legislative enactment for the control of prostitution. The paper bears evidence of considerable care in its preparation, and shows much diligence in research. In the presentation of the subject there is no lack of power, while in the writer's manner there is the obvious intention to be temperate and fair. We find nothing in the views expressed which does not conform with the requirements of humanity and of justice, and of expediency as well. It was decided to postpone the discussion of the paper by the society before which it was read for one year, "and a committee of seven was appointed to investigate the subject thoroughly, and to report upon it to the society at that time."

9. In cases of *subpreputial chancre complicated with phymosis* it has not generally been considered good practice to perform any cutting operation for the purpose of retracting the prepuce, for fear of exposing a wounded surface to the chancrous virus. Aubert proposes a method of performing circumcision in these cases, by means of which, he claims, the supposed danger is entirely obviated. He first has the penis and all neighboring parts with which it may come in contact (scrotum, abdomen, and thighs) thoroughly washed and bathed in a solution of carbolic acid. The penis is then drawn through a small aperture in a sheet of gutta-percha paper, which is intended to receive the blood or discharges that escape during the operation, and can afterward be easily cleansed. The patient is anæsthetized, and all the chancres in view are lightly touched with the actual cautery. Next, a small slit is made in the rim of the prepuce, just sufficient to enable the foreskin to be retracted. The exposed glans is then cleansed, and all the subpreputial sores are superficially cauterized. With hands and instruments all carefully cleaned, the operator then proceeds to perform circumcision in the ordinary manner, and the wound is brought together by means of the usual thread sutures. In six cases reported in which this method was practiced the result was perfectly successful—union taking place by the first intention. [It occurs to us that the thread sutures might with advantage be replaced by *serres fines.*]

10. Dr. Rebatel recently made some careful experiments regarding *the inoculation of gonorrhœa, simple chancre, and syphilis upon the lower animals.* In not a single instance was the experiment productive of positive results. The pus of gonorrhœa, applied to the mucous membrane of the eye or the urethra in dogs, rabbits, or guinea-pigs, was followed by no reaction whatever. The pus of simple chancre (chancroid) proved equally innocuous to these animals. The matter was inoculated beneath the skin at various parts of the body, such as the nape of the neck, the ears, back, snout, and groin, invariably with negative result. A similar experience had been previously encountered by Horand and Peuch, whose experiments were made at a veterinary institution upon dogs, cows, horses, and other animals. The result was the same with respect to the virus of syphilis. One of the experiments seemed strikingly conclusive. A young healthy bitch was inoculated by inserting beneath the skin of the groin on either side two indurated chancres—the ulceration not only being included, but the indurated zone of the chancre as well. The places healed by first intention and complete absorption followed, without even any signs of engorgement of the lymphatic glands. At about the same time a young dog had been inoculated by injecting the jugular vein with defibrinated blood from a patient with secondary manifestations of syphilis.

The only effects produced were such symptoms as the severity of the operation and the sudden introduction of a considerable quantity of foreign blood into the animal's economy would easily account for, but nothing indicating any infection. Finally, these two animals were allowed to copulate. In due time the bitch was the mother of a litter of eleven pups, all of which were perfectly healthy, showing not the slightest trace of any hereditary taint. [These experiments are interesting, as showing how much less is the susceptibility of the lower animals to the venereal viruses than that of man, but they are far from proving the universal immunity of the lower animals. A single well-attested successful inoculation will outweigh any number of negative results. It is true, the data thus far afforded are very meager. The sores produced in the experiments of Turenne, von Welz, Diday, and others by the inoculation of chancrous matter may have been simple ulcerations due to irritation (not to contagion), and the cases of Bradley, Legros, and Klebs, who claimed to have produced symptoms resembling syphilis in certain animals by inoculation of syphilitic virus, lack corroboration. Nevertheless, the subject still invites inquiry. With the discovery of a way of transmitting syphilis to the lower animals advantages may accrue to syphilology of the greatest moment. The hope of producing by such transmission a modified form of the disease, with prophylactic powers allied to those of vaccinia, is not wholly a vain fancy, and still affords a legitimate motive for arduous research.]

11. Finger describes four classes of cases of *associated secondary and tertiary manifestations of syphilis.* In the first are included cases of re-infection while the subjects were still suffering from tertiary lesions of the first attack. Such cases have been reported by Gaskoyen and Merkel. To the second group belong cases of precocious or malignant syphilis, where the graver lesions that usually pertain to the late stages of the disease manifest themselves before the secondary symptoms have disappeared. In a third class of cases, though the disease is not necessarily of a particularly severe form, the deeper structures, such as the crest of the tibia, become affected at an early period. The fourth class relates to cases in which, for some unexplained reason, the order of the symptoms is inverted—tertiary lesions preceding the secondary, or secondary manifestations recurring after the appearance of tertiary symptoms. The writer reports seven such cases, which occurred in the course of four years, with an average of eight hundred cases of syphilis a year.

13. The following reasons are given by Fournier for his belief in a *syphilitic locomotor ataxia*, the existence of which is denied by a large portion of the profession. 1. The frequency of syphilitic antecedents among the subjects of ataxia. 2. The fact that ataxia occurs almost exclusively in the tertiary stage of syphilis. The writer states that of eighty-five cases observed in syphilitic subjects eighty-one did not develop until after the fourth year of the specific disease, only three in the third year, and one in the last month of the second year. This clearly implies, the writer thinks, something more than a mere accidental coincidence. 3. The frequent association of ataxic symptoms with symptoms which are of especially common occurrence in syphilis, such as paralysis of the cranial nerves, more particularly of the third pair. Moreover, the circumstance is alluded to as significant that these paralyses, both in syphilis and in locomotor ataxia, are marked by a peculiar partial or incomplete character—certain muscles within the distribution of the nerves involved being affected while others are not. Again, common to both diseases are such symptoms as hemiplegia, congestive and apoplectiform attacks, epileptiform seizures, aphasic symptoms, intellectual disturbances of various sorts, as well as progressive general paralysis. 4. The decided influence exerted by anti-syphilitic treatment. 5. The frequent concurrence of the ataxic symptoms with manifestations of an undoubtedly syphilitic character affecting various regions of the body—such as bone disease, cutaneous affections, gummata, and the like. 6. The impossibility, often, of discovering any other cause than syphilis to account for the ataxic disease. In conclusion, the writer refers to the relations of syphilitic ataxia to antecedent specific treatment. Fournier, consistently with convictions he has so often expressed, regards ataxia as one of the consequences of insufficient treatment in the early stages of syphilis.

16. Spillmann reports eight cases of *excision of the initial lesion of syphilis* performed with a view to the prevention of constitutional infection, but with not very favorable results. The diagnosis of the chancres was made to depend upon three elements, viz: (1) Confrontation when practicable; (2) autoinoculation; and (3) microscopic examination. In the first two cases the operation appeared to be a success. In neither of these was there any noticeable implication of the inguinal glands. In the following four, in all of which there was induration of the lymphatic glands, the excision did not prevent the appearance of secondary manifestations in due time, although they were generally benign in character. In the two remaining cases the operation was succeeded by grave syphilis. In one of these last two cases the patient (a young woman) was under observation when the chancre first made its appearance, and the lesion was excised almost immediately. In spite of this, secondary symptoms of a severe character followed, while a sister of the patient, who had contracted the disease at about the same time and was put directly upon the usual antisyphilitic treatment, had constitutional syphilis of a mild grade, and was soon in condition to leave the hospital.

17. Aubert proposes an ingenious, if somewhat fanciful, scheme for *the prevention or abortion of syphilis after the inception of the initial lesion.* It was suggested by some curious experiments of Gautier concerning the prevention of rabies in dogs and sheep. Gautier found that if an intra-venous inoculation of the virus of rabies was made in these animals, and the virus some time afterward was inoculated beneath the skin, the first inoculation invariably prevented infection from taking place. In three instances, moreover, the inoculation beneath the skin was made first, and, twenty-four hours after, the virus was inoculated into the veins. In these cases, also, the disease was prevented. Aubert argues that something similar to this takes place where a mother acquires immunity from syphilis by carrying a syphilitic fœtus, the virus entering the maternal system only through the blood, thereby effecting a kind of preventive inoculation. The writer's scheme, then, is, when an undoubted infecting chancre (initial lesion) has been contracted, to take some of the secretion and blood from its surface, and therewith inoculate the patient's venous system. By this means a modified sanguineous infection is to forestall and annul the later (presumably lymphatic) infection from the chancre. [Perhaps.]

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Miscellany.

THE LATE DR. JAMES R. WOOD.—At a special meeting of the Medical Board of Bellevue Hospital, called on the occasion of the death of the late Professor James R. Wood, and held on the 6th of May, 1882, it was

Resolved, 1. That by the death of our late associate the Board has lost a member whose services for a period of thirty-five years as an attending surgeon to this Hospital, and whose labors as a clinical teacher, have contributed largely to the usefulness of the institution in the relief of suffering, and in the diffusion of the practical knowledge of surgery.

2. The memory of our late associate will ever be gratefully cherished as the founder of the pathological museum connected with this Hospital, which he enriched by the gift of his large and valuable private collection, and which deservedly bears his name.

3. The members of this Board feel that by the death of the late Professor Wood they have individually lost a generous, warm-hearted, and steadfast friend, as well as a valued associate;

and that his death leaves a void which must remain unfilled, not only in the Hospital, and in the relations of friendship, but in the medical profession and in social life.

4. The Medical Board tenders the heartfelt sympathy of all its members to the family and relatives of the late Professor Wood in the loss which they have sustained, together with the hope that they may derive consolation from his merited professional eminence, his long life of usefulness, his unblemished character, and his private virtues.

A. CLARK, *President*,
CHARLES MCBURNEY, *Secretary*.

THE LATE DR. ERSKINE MASON.—The following resolutions were adopted at a recent meeting of the Board of Trustees of the New York Physicians' Mutual Aid Association:

WHEREAS, It has pleased God in his Providence to remove from among us our late friend and associate, Dr. Erskine Mason; and

WHEREAS, This Board has, for many successive years, profited by his advice and counsel,

Resolved, That the Board of Trustees of the Physicians' Mutual Aid Association hereby records its sorrow at his untimely death in the midst of a useful and honorable career in a profession to which he had devoted the best years of his life with earnestness and fidelity.

Resolved, That by his death this Board loses a member who was always prompt and faithful in his attention to his duties, fully sensible of the trust committed to him, and watchful in guarding the interests of the Association; kind and courteous to his fellow-members, considerate of the claims of the needy, and wise in his suggestions for their relief.

Resolved, That this faithfulness which he showed as a trustee was carried into all the associations of his medical life with the same zeal and conscientious devotion to whatever he undertook, giving us all an example worthy of imitation.

Resolved, That these resolutions be inserted in the medical journals, and a copy of them transmitted to his bereaved family, with the sincere sympathy of the Board.

GEORGE A. PETERS,
GEORGE G. WHEELOCK,
DANIEL LEWIS,
Committee.

AT the stated meeting of the New York Pathological Society, held May 10, 1882, the following was unanimously adopted:

"This Society has heard, with profound regret, of the death of Dr. Erskine Mason, at one time the presiding officer. For many years an active member, he took a deep interest in the work of the Society, and was a regular attendant at its meetings, presenting many valuable specimens, and taking part freely in its discussions.

"He will long be remembered for the clear and intelligent manner in which he presented his cases, and for the valuable lessons he deduced from them.

"By the death of Dr. Mason this Society has lost one of its most active and efficient workers, and a member who, by his kindness of manner, had endeared himself to his associates. Strong in his convictions, he was, nevertheless, always courteous in discussion to those who held different opinions, seeking the elucidation of the truth rather than endeavoring to enforce his own ideas.

"Strictly honorable in all his professional relations, he had won the respect of his brethren, both as a man and as a surgeon.

"In him we have lost one who set us a bright example of energy and industry, of careful and thoughtful study, and of professional honesty and courtesy.

"*Resolved*, That the above minute be entered upon the records of the Society."

(Signed) ROBERT WATTS,
J. H. RIPLEY,
E. L. KEYES,
Committee.

ARMY INTELLIGENCE.—*Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from April 14, 1882, to May 13, 1882.*—KING, WILLIAM S., Colonel and Surgeon. The extension of his leave of absence on account of sickness, granted him in S. O. 251, November 7, 1881, from A. G. O., still further extended six months on account of sickness. S. O. 104, A. G. O., May 5, 1882. ═══ WILLIAMS, JOHN W., Major and Surgeon. Granted leave of absence for six months. S. O. 101, A. G. O., May 2, 1882. ═══ JACQUETT, G. P., Major and Surgeon. Granted leave of absence for six months on surgeon's certificate of disability. S. O. 97, A. G. O., April 27, 1882. ===== Gardner, W. H., Captain and Assistant Surgeon. His assignment to duty at Fort McKavett, to relieve Surgeon Waters, revoked, and to report to the commanding officer, Fort Davis, Texas, for duty as post surgeon. S. O. 38, Department of Texas, April 14, 1882. ===== Cleary, P. J. A., Captain and Assistant Surgeon. The leave of absence on surgeon's certificate of disability, granted him in S. O. 224, October 4, 1881, from A. G. O., is extended six months on account of sickness. S. O. 107, A. G. O., May 9, 1882. ===== Lauderdale, J. V., Captain and Assistant Surgeon. Par. 1, S. O. 47, C. S., from these headquarters, in regard to him, revoked; and he will proceed to Fort Sully, D. T., and report to the commanding officer of that post for duty. S. O. 59, Department of Dakota, April 13, 1882. ===== Cowdry, S. G., Captain and Assistant Surgeon, now awaiting orders, to report to the commanding general, Department of the East, for assignment to duty at Fort Monroe, Virginia. S. O. 103, A. G. O., May 4, 1882. ===== Hoff, J. V. R., Captain and Assistant Surgeon. To be relieved from duty in Department of the East, and report in person to the commanding general, Department of California, for assignment to duty. S. O. 103, C. S., A. G. O. ===== Brown, P. R., Captain and Assistant Surgeon. To be relieved from duty in Department of Texas on receipt of this order, to proceed to New York, and on arrival report by letter to the Surgeon-General. S. O. 88, A. G. O., April 17, 1882. ===== Finley, J. A., Captain and Assistant Surgeon. Relieved from duty at Fort Concho, Texas, and assigned to duty as post surgeon at Fort McKavett, Texas, relieving Surgeon Waters. S. O. 88, C. S., Department of Texas. ===== Maus, L. M., Captain and Assistant Surgeon. Having reported at these headquarters, will proceed to Fort Lewis, Colorado, and report to the commanding officer for duty. S. O. 86, Department of the Missouri, April 24, 1882. ===== Kilbourne, H. S., Captain and Assistant Surgeon. Having reported in person at these headquarters, will proceed to Fort Shaw, Montana Territory, and report to the commanding officer of that post for duty. S. O. 60, Department of Dakota, April 14, 1882. ===== Hall, W. R., Captain and Assistant Surgeon. Assigned to duty at Fort Bliss, Texas. S. O. 95, Department of the Missouri, May 8, 1882. ===== Gardiner, J. de B. W., Captain and Assistant Surgeon. Telegraphic instructions of this date assigning him to duty at Fort Huachuca, A. T., confirmed. S. O. 57, Department of Arizona, April 19, 1882. ===== Gardner, Edwin B., Captain and Assistant Surgeon. Having reported at these headquarters, is assigned to temporary duty at Vancouver Barracks, Washington Territory. S. O. 50, Department of the Columbia, April 14, 1882. ===== Corbusier, William H., Captain and Assistant Surgeon. Assigned to duty as post surgeon at Fort Mackinac, Michigan. S. O. 67, Department of the East, April 15, 1882. ===== Shufeldt, R. W., Captain and Assistant Surgeon. Granted leave of absence for three months from May 1, 1882. Relieved from duty in the office of the Surgeon-General, to take effect May 1, 1882, and upon expiration of his leave to report by letter to the Surgeon-General. S. O. 92, A. G. O., April 21, 1882. ===== Davis, William B., Captain and Assistant Surgeon. So much of Par. 12, S. O. 78, April 5, 1882, from A. G. O., as directs him to report for duty to the commanding general, Department of the Platte, is amended as to direct him to report in person for duty to the commanding general, Department of Dakota. S. O. 87, A. G. O., April 15, 1882. ===== Robinson, S. Q., Captain and Assistant Surgeon. Having reported at these headquarters, is assigned to duty at Fort Spokane, Washington Territory. S. O. 50, C. S., Department of the Columbia. ===== Carter, E. C., First Lieutenant and Assistant Surgeon. To be relieved from duty in Department of California and report in person to the commanding general, Department of Arizona, for assignment to duty. S. O. 103, C. S., A. G. O. ===== Raymond, H. I., First Lieutenant and Assistant Surgeon. To be relieved from duty in Department of California, and report in person to the commanding general, Department of Arizona, for assignment to duty. S. O. 103, C. S., A. G. O.

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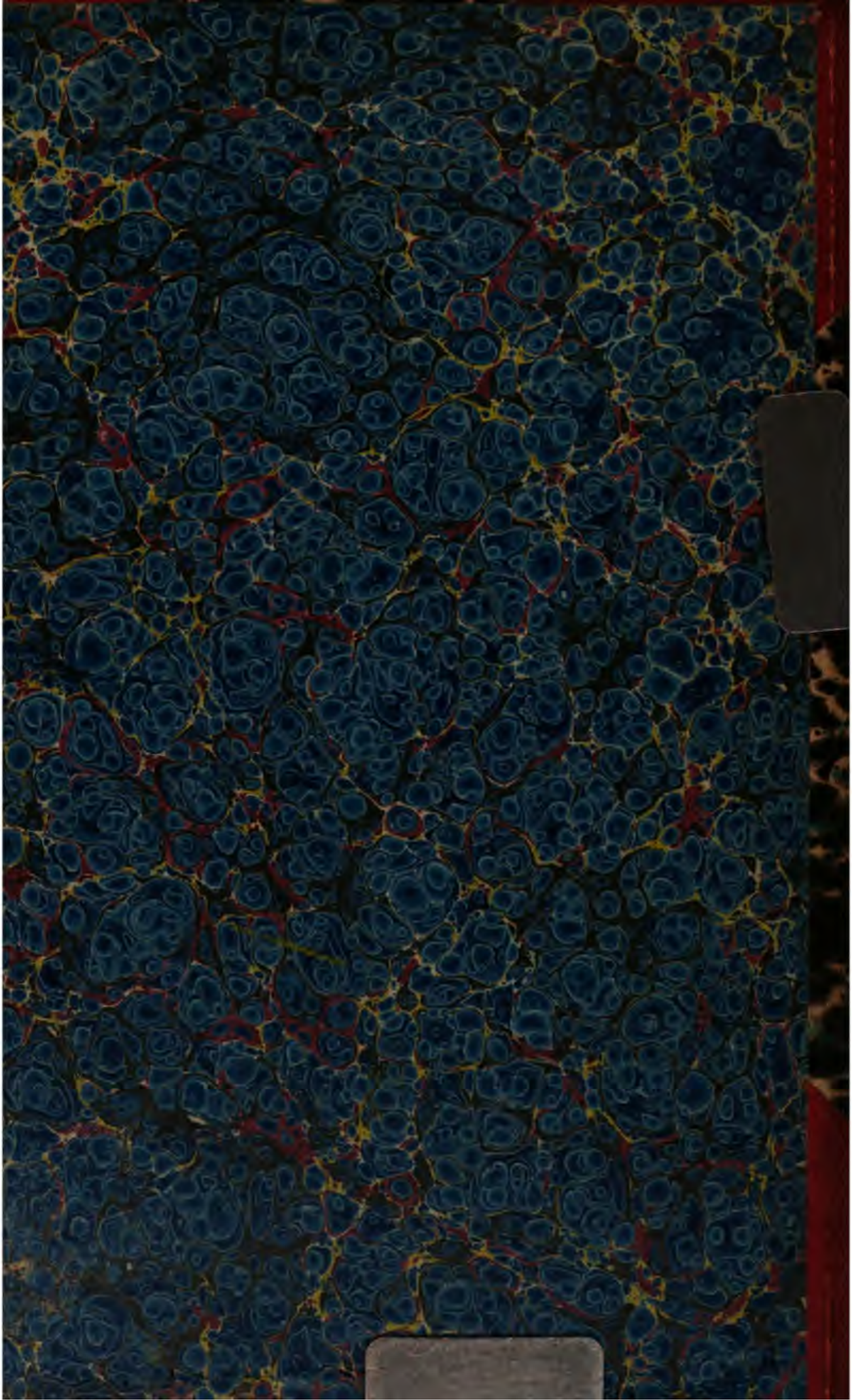

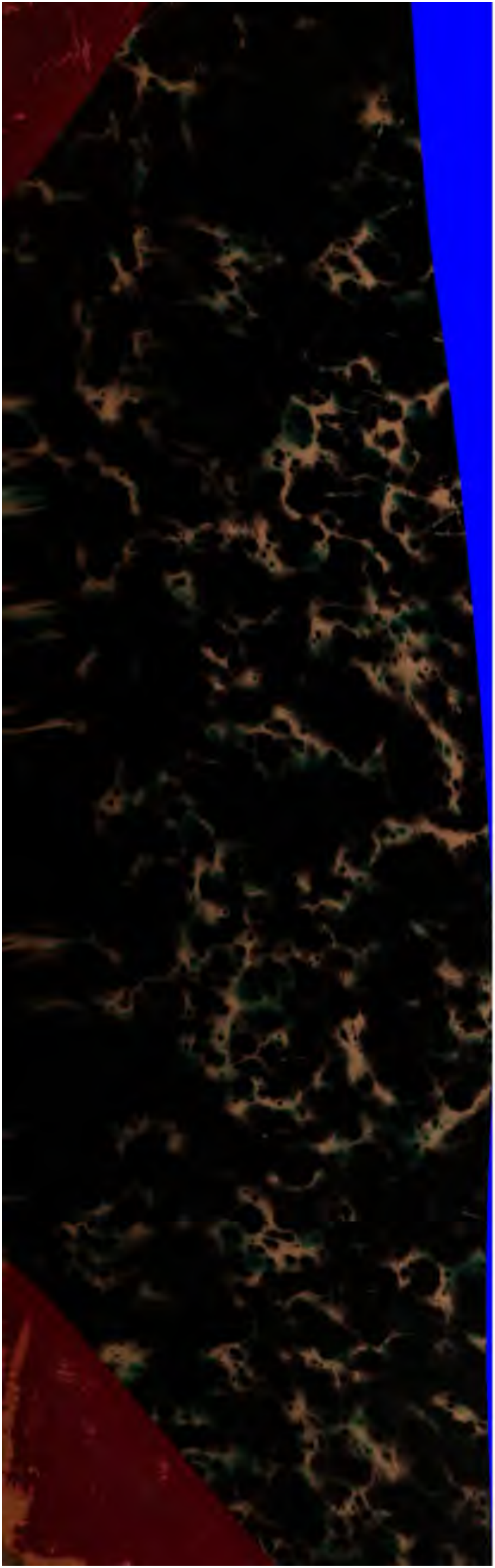

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